

ROCKY MOUNTAIN MEDICAL JOURNAL

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Table of Contents

October 1959, Volume 56, Number 10

A medical potpourri, Andrew M. Babey, M.D.,
Las Cruces, New Mexico, 6
Shadow or substance, Marcus J. Smith, M.D.,
Santa Fe, New Mexico, 96

Editorials

More physicians must become better citizens—
or else!, 41
Fight, and continue to fight, the
Forand bill, 41
Ethics in medical advertising, 42
Inroads of veterans' medical care in
the private practice, 42
Those traveling medical politicians, 43
How WEE is a virus?, 43

Articles

Neonatal hepatitis, W. R. Elton Newman, M.D.,
Salt Lake City, 44
The intramedullary prosthesis in hip pathology,
Foster Matchett, M.D., Denver, 47
Low-cost penicillin for prevention of
rheumatic fever, John A. Lichty, M.D., and
Argyle Seikel, M.P.H., Denver, 61
Improved outlook for patients with carcinoma
of the pharynx, Will P. Pirkey, M.D.,
Denver, 65
Elbow fractures, E. V. Bigelow, M.D., Denver, 67
Translumbar aortography,
Robert V. Elliott, M.D., Denver, 72
Trichlorethylene analgesia in minor surgery,
Richard S. Bolten, M.D., Denver, 76
Unilateral renal disease in hypertension,
S. H. Bassow, M.D., Denver, 79
Genitourinary tuberculosis, Anthony A.
Borski, Major, MC, Denver, 88

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Lawrence T. Brown, M.D., Denver, 91
Congenital mitral stenosis with coarctation
of the aorta, Calvin R. Openshaw, M.D.,
and Hans H. Hecht, M.D., Salt Lake City, 93

Organization

The Washington scene, 108
Colorado, 110
New Mexico, 110
Utah, 110

Rocky Mountain Medical Conference, 138

Medical school notes, 159

Book corner, 162

Officers page, 164

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Colorado, 110
New Mexico, 110
Utah, 110

Rocky Mountain Medical Conference, 138

Medical school notes, 159

Book corner, 162

Officers page, 164

. . . . The pages that are missing were removed because they were advertisements.

MICRONITE FILTER:

key to Kent's popularity

During the past year, Kent sales increased by 20-billion cigarettes—the greatest gain in popularity ever recorded by any filter cigarette in any year.

Undoubtedly much of the credit for this important rise in sales must go to Kent's exclusive "MICRONITE" Filter. This extraordinary new filter was constructed to take into account new principles of filtration which were dictated by the basic discoveries of a major research foundation, working under Lorillard sponsorship.

The foundation determined that the average puff of cigarette smoke contained over 12 billion semi-solid particles. Additional research revealed that inhaled smoke from ordinary cigarettes has a predominant proportion of particles, from 0.1 to 1 micron in diameter, average 0.6 micron.

Ordinary filter fibers are so large that they create spaces through

which the small semi-solid smoke particle can easily pass. However, in the exclusive Kent filter, the fibers are mechanically manipulated in such a manner as to create extremely tortuous passageways for the smoke. In this maze-like network of super-fine fibers the smoke particle has much less chance to slip through the filter.

Thus, Lorillard research created a filter which reduced tars and nicotine in the

"inhaled" smoke to the lowest level among the largest selling brands. As smokers learned about the "MICRONITE" Filter, they changed to Kent. During the past year, for instance, more smokers changed to Kent than to any other cigarette in America.



If you would like for your own use the booklet, "The Story of Kent," write to:

P. Lorillard Company
Research Department
200 East 42nd Street
New York 17, N. Y.

A Product of P. Lorillard Company—First with the finest cigarettes—through Lorillard Research!

A medical potpourri

Compiled by Andrew M. Babey, M.D., Las Cruces, New Mexico

1. "(The good doctor) will find that the world gives him little attention except to impose restrictions and to exact responsibilities, and he will find his patients but little able to cooperate with him, uneasy and subject to strange moods." Collected Papers of Wilfred Trotter, FRCS., London, Oxford University Press, 1941, page 13.

2. "The only way to the serene sanity which is the scientific mind—but how difficult consistently to follow—is to give to every fresh idea its one intense moment of cool but imaginative attention before venturing to mark it for rejection or suspense, as alas nine times out of ten we must do." Ibid., page 28.

3. "To the deep unreason with which all patients approach the medicine man, his interest is more potent than knowledge and skill, the latest development in science, or the utmost virtuosity in art." Ibid., page 100.

4. "In view of such considerations as these it may well be asked whether the time has not come when it should be recognized, with all the practical consequences that would follow, that observation can no longer be regarded as able to effect serious advances in medicine." Ibid., page 113.

5. "Really effective thinking is the most difficult of all human activities, and very easily inhibited by professional and official conventionalities." Ibid., page 189.

6. "Man experiences two kinds of fear, which we may call individual fear and panic fear. Of the former we need only say that it is by no means incompatible with mental activity of the best kind, and that it is directly related to its object. Panic fear, on the other hand, is not directly related to its object, but is derived by its subject from the reactions of his fellows; it is therefore, so to say, infectious. Being an experience solely of social creatures, it has for its function the obliteration of the individual consciousness, which becomes merged in an impulse shared by its fellows. It thus happens that panic, however mild, has an immedi-

ate effect in weakening rational judgment. Every conclusion arrived at under its influence, however plausible it may seem in that deceptive medium, will be corrupted by departures from sound sense. In examining decisions reached under the influence of panic we are not to look for blunders and errors in judgment, for the fruits of ignorance or the fatuity of office, but for something at once more subtle and more characteristic. We are to look for decisions that could have been reached only by people in whom the faculty of practical reason was actually impaired." Ibid., page 193.

7. "For many years it was believed that achlorhydria—now recognized as a manifestation of iron deficiency—predisposed to inefficient absorption of iron. Far from being responsible for the iron deficiency, it is now recognized as one of its results. Many patients with achlorhydria can still absorb iron from their food, and the addition of hydrochloric acid is of no special benefit to them. Probably the low serum-iron caused the gastric mucosal changes which lead to achlorhydria." Anemia and Alimentary Disorders, in Annotations, Lancet. 1:617 (March 21) 1959.

8. "It is known that pernicious anaemia is the result of a conditioned deficiency of vitamin B₁₂ and that nothing apart from the vitamin is required for its relief. . . . It may surprise some to learn that liver extracts are still used in the treatment of this disease. . . . Whether they even now serve any useful therapeutic purpose is doubtful, but it is certain that in the management of patients with pernicious anemia their use is not merely of inconstant efficacy and excessive cost, but often of positive danger." Liver Extracts and Pernicious Anemia, in Annotations, Brit. M.J., 1:841 (March 28) 1959.

9. "Patients with a low tolerance of discomforts and frustrations are those more likely to be addicts, just as they are those more likely to turn to drugs in the first place. The development of addiction, in fact, depends much on the personality." Partridge, M., Addiction to Drugs: Part 1, Brit. M.J. 1:850 (March 28) 1959.

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RECENT LEGISLATIVE DEVELOPMENTS and activities, both at the state and national levels, are of increasing concern to those physicians who are most active in their medical associations. They are, more than many others, fully

More Physicians Must Become Better Citizens— Or Else!

aware of the importance of increasing interest by all physicians in every phase of political activity and of the great importance of continual exchange of information and opinion with those individuals who represent our citizenry in the various lawmaking bodies. It is imperative, in the opinion of those best informed, that all physicians cultivate affiliations and associations in both major political parties. During the coming years, legislation, both national and state, will be influenced less and less by pressure politics and letter writing campaigns, *per se*.

Physicians, to be effective in politics, must not be opportunists, but must become acquainted with candidates and potential governmental officials before their election. In other words, physicians must participate in politics and must contribute their knowledge, aims and ideals, as well as funds, to both of the important political parties before they develop their platforms, policies and campaign issues. Physicians must also endeavor to influence the selection of candidates so that representatives of government will be of the highest caliber and integrity. Physicians will be better citizens and, incidentally, better physicians if they will contribute as much to the science of politics, government and economics as they contribute to good scientific medicine.

Organized medicine must propose and sponsor sound legislation for the common good and not restrict its legislative activities only to those state and national legislative proposals which it must oppose because they are socialistic and not in the best interests of good health care for every citizen. One of

the greater obstacles which confronts medicine is the reluctance of physicians generally to participate as individuals in politics and in the political activities of both major parties. Being a good physician with scientific medical knowledge is not enough. To be a good physician one must know and understand all of the political, economic and social aspects of government. Physicians must be leaders by fulfilling collectively their responsibilities to all agencies.

L. R. Hegland

DR. F. J. L. BLASINGAME, Executive Vice President of the American Medical Association, has thanked members of lay organizations as well as State Medical Societies for splendid cooperation early last summer in

Fight, and Continue to Fight, the Forand Bill

fighting the Forand Bill. There were many letters and telegrams received by the Congressmen, and the Board of Trustees of the Colorado State Medical Society sent an official witness in opposition to HR 4700. Dr. Irvin Hendryson addressed the hearings in Washington and presented the resolution. It comprised an important element toward our winning the fight against the vicious bill.

We are proud of the forthright statement made on July 17 before the House Ways and Means Committee before the 86th Congress when they were considering amendments to the Social Security Act. Among other significant statements, Dr. Hendryson said, "When we send a dollar to Washington it comes back to the community as a *mighty small* piece of change! Furthermore, health, Gentlemen, in all its aspects and ramifications is *our business* just as government is *your business*." It is absurd that a few persons should now suddenly appear on the scene in Washington and insist that what American physicians and their institutions have been doing for 55 years is wrong and that only they know

what is best in medical care! Surely we have not done too badly in raising life expectancy from 47 years in 1900 to 70 years in 1955.

Let us continue to fight until the vicious Forand Bill is downed. Since aging has become, and will continue to be, a major problem, for the sake of the people primarily—and ourselves secondarily—let us face it at the community level!

WE HAVE RECEIVED A THOUGHTFUL LETTER from one of the venerable "senior citizens" in our profession in the Rocky Mountain region. It was addressed to the President of the Colorado State Medical Society and stated, "I would suggest that the Publication Committee take a second look at the advertising in the

Ethics in Medical Advertising

Rocky Mountain Medical Journal. I believe that our high standard of ethics is a little lower than it should be." The President gave it his prompt attention but requested that our colleague should be more specific and state which advertisements in which issues of the Journal impressed him as being below standard. In reply, the "critic" said that he purposely refrained from mentioning any particular advertisement, since he believed that our Society should not be guided by individual complaints. However, in order to be specific, he said, "I very much object to advertisements for cigarettes, since there is a good medical reason to believe that they cause lung cancer. Then, too, knowing that alcoholism is a major medical problem, I feel squeamish about brandy and beer." He concluded by presuming that the ads come through the State Medical Journal Advertising Bureau at the A.M.A., but he does not believe that Chicago is the keeper of our conscience.

Hereupon is opened an old subject of deliberation by your editors and the Publication Committee. We, too, have looked with some concern upon advertisements for tobacco and alcohol in ethical medical journals. We go along with Confucius, or somebody, that you do not need to smoke or drink to have fun. But both "vices" are here to stay,

laws and legislation having failed to control man's determination to smoke, drink, or speed himself to death. As a profession, we can only do our best ethically to inform him of what he is doing to himself.

In our opinion, whether the Rocky Mountain Medical Journal carries advertisements for tobacco and alcohol will not make one statistic's difference in lung cancer, peripheral arterial disease, or dementia praecox. However, our articles upon cancer, Buerger's disease, and auto safety belts may help physicians to guide their patients along the ways of temperance. If there is an answer to all the implied evils of these habits and appetites, temperance is it!

Hastening to admit that the subject is controversial, we appeal to our readers for more pro and con. What do you think, Doctor? Please think it over and send us a "Letter to the Editor."

A LETTER CAME TO OUR JOURNAL OFFICE from the Medical and Chirurgical Faculty of the State of Maryland (Maryland State Medical Association) over the signature of Dr. Amos R. Koontz, Chairman of the Committee on

Inroads of Veterans' Medical Care in the Private Practice

Veterans' Medical Care. Dr. Koontz stated that the Faculty has, for many years, expressed

concern over the inroads the Veterans Administration Hospitals are making into the realm of private practice of medicine. "In order to combat the fantastic growth of treatment of non-service connected ailments of veterans, the Faculty has passed many resolutions condemning this practice and urging that something concrete be done to curtail or stop this insidious growth," said Dr. Koontz. The Faculty's House of Delegates has passed a resolution that all component medical societies of the A.M.A. be contacted and urged to support the Faculty's stand in this respect. They have thereby sent letters to every A.M.A. component medical society and have received eleven affirmative answers.

Other affirmative answers are anticipated and full support of concerted action should

be forthcoming. We agree that all physicians should be alerted of the steps contemplated along these lines, and we join in the hope that an appropriate resolution will be introduced in the A.M.A. House of Delegates at the impending clinical session in Dallas next December.

THE TRAVEL ITINERARY OF THE PRESIDENT of any State Medical Society grows longer each year. Demands for his time and energies to attend various meetings continue to increase. Eventually, the President must select the

meetings that will be most helpful to him.

Those Traveling Medical Politicians

To an interested observer, the yearly parade of new Presidents of State Societies is fascinating. All react in a similar manner when the gavel is rapped sharply and a President of a State Medical Society is transformed from a Board member, Councilor or Committeeman to the leader and head of his fraternal organization. They are all humble, self-conscious, but have a keen sense of responsibility to perform the duties in a dignified and equitable way.

During the first two or three months the new President is bewildered, unsure, and amazed at the volume of requests and the duties demanded of him. A travel itinerary is placed before him of firm commitments he is to make during his year as President. He is shocked beyond description at the time to be spent away from home. This travel agenda does not include the innumerable committee meetings, allied group meetings, etc. One state, New Mexico, has firm commitments for its President to be away from home on official business 40 days between September, 1959, and March, 1960.

Most Presidents are reimbursed for their out-of-pocket expenses while away from home. A very few states pay him an honorarium. The major loss for Presidents is being separated from their families so much and the loss of practice while away working for all practicing physicians.

With many thousands of traveled miles and calouses from shaking so many hands,

the "new" President quickly becomes a seasoned "medical politician." He has learned to take the bitter with the sweet and to "ride with the punches." He is sure of himself and has a feeling of pride.

Presidents of State Medical Societies can rightly be called "Traveling Medical Politicians." Thank the Good Lord for them! Without them medicine would have long been completely controlled by the government. They are carrying the battle to the "social do-gooders" who would prefer to control you and the practice of medicine. While Presidents are crusading for medicine's cause, they do so because they genuinely believe in what they are doing rather than anticipating recognition or remuneration.

These Traveling Medical Politicians end their year having learned considerable. They have also established invaluable everlasting friendships among other rewards of sacrifice and hard work!

Ralph Marshall

WERE YOU STARTLED, as we were, on reading in one of the recent medical news letters that "Garter Snake May Harbor WEE Virus"? We had just naturally assumed that garter snake viruses would be smaller than Boa

How WEE is a Virus?

Constrictor viruses. And that earthworms probably harbored WEE-WEE viruses. The WEE-WEE virus, as you know, causes marked urinary frequency—or do earthworms have only a cloaca?

At any rate it turned out that WEE stands for Western Equine Encephalitis, and that PHS investigators believe now that the virus "winters" in garter snakes after they have been bitten by infected mosquitoes. And that mosquitoes rekindle the summer epidemics when they bite infected garter snakes in the spring.

This is believed to be the first evidence that an important avian and mammalian parasite "can cause long lasting viremia of high titer in a cold-blooded vertebrate."

This is very interesting and probably important but we ask you—did you ever think of a simple, playful, harmless garter snake as being a "cold-blooded vertebrate"?

Neonatal hepatitis

*Contracted from sub-clinical maternal infection**

Frank K. James, Jr., M.D., and W. R. Elton Newman, M.D., Salt Lake City

A case report adds to the scanty literature on this rare condition.

INFECTIOUS HEPATITIS contracted during the first trimester (organogenetic period) of pregnancy appears to be rare. The low incidence as recorded in the literature makes it difficult to ascertain the effects of the virus upon the fetus. Current opinion is divided as to: (a) whether or not the virus is deleterious to the fetus, if it crosses the placental barrier, and (b) whether or not therapeutic abortion should be considered if the disease is contracted during the first trimester of pregnancy.

Mansell¹ noted a total of 19 cases of infectious hepatitis contracted during the first trimester of pregnancy and added two new cases. Of those reported, five births (26 per cent) were shown to have fetal abnormalities, and three patients aborted spontaneously. This compares to studies made by Ober² and Korn³ on the incidence of fetal abnormalities associated with maternal rubella contracted during the first trimester of pregnancy. Ober noted 22.7 per cent of the births had congenital malformations, while Korn noted an incidence of 17.2 per cent.

Transplacental transmission

The evidence for and against transplacental transmission of infectious hepatitis (virus type A) is not conclusive. The work of Stokes⁴, Neefe⁵ and Murray⁶ on the successful transfer of virus A (in feces and in whole blood) from known carriers to volunteers seemingly establishes a carrier state in this disease. The transfer of virus A from the blood of a newborn with jaundice to a volunteer (Stokes⁷) offers evidence for transplacental transmission of this disease under laboratory conditions. Bellin and Bailit⁸ cite a case of portal cirrhosis in a newborn, relating this to maternal infectious hepatitis, contracted two months prior to term.

Zondek and Bromberg⁹ state that the virus A does not affect the fetus because (a) it does not cross the placental barrier or (b) it does not reach sufficient concentration in the fetal circulation. They do concede that infectious hepatitis during pregnancy, particularly during the first trimester, causes an increased tendency toward prematurity in the newborn. Martin and Ferguson¹⁰ note four cases of maternal hepatitis in which there was no clinical evidence of fetal involvement; and, as previously stated, 14 of 21 cases cited by Mansell showed no effect upon the fetus, although the virus was contracted by the mother during the first trimester of pregnancy.

Roth¹¹ states that infectious hepatitis is not an uncommon complication of pregnancy, citing 16 cases (three contracted during the first trimester) in which there were two spontaneous abortions, three stillbirths and

*From the Department of Preventive Medicine, College of Medicine, University of Utah. This work was supported in part by a Summer Fellowship Grant in Public Health and Preventive Medicine from the National Foundation and in part by a Teaching Grant in Preventive Medicine from the Kellogg Foundation, Battle Creek, Michigan.

11 normal births. He also states that there is no evidence that infectious hepatitis causes fetal anomalies, nor does it affect the mother more than in non-pregnant cases. He does not consider therapeutic abortions necessary.

Numerous authors, including Scott¹², Beard¹³, and Adams¹⁴, implicate the transplacental transmission of serum hepatitis (virus type B) to siblings with subsequent neonatal hepatitis in the first six months of life, often terminating fatally. This is substantiated by Aikat and Kaier. In almost all cases cited (86 per cent), virus B is apparently transmitted in consecutive pregnancies, although the mother may have given birth to several normal infants prior to infection with virus B.

Following is a history of probable transplacental transmission of infectious hepatitis (virus type A) from a subclinical case in the mother:

CASE REPORT

During the winter and spring of 1955-56, an outbreak of infectious hepatitis was noted in Salt Lake County, totaling 55 clinical cases and numerous (probable) subclinical cases, occurring chiefly among school-aged children, ages 6 to 14. One group of four families, widely separated geographically within Salt Lake County, recorded a total of 18 cases within a nine-month period. In one of these families there were four cases—the mother and her three children. The mother had worked as a nurses' aid in a local hospital for one year prior to her illness and had been in contact with numerous jaundiced patients. A check of hospital records for that period of time revealed that none of these jaundiced patients had been diagnosed as having infectious hepatitis. The mother denied any history of accidental skin puncture with needles, syringes, finger sticks, etc. However, she did have contact with bedpans and bedclothing of jaundiced patients. She relates no history of transfusions or "shots" of antibiotics or immunizations. The mother had received injections and venipuncture incident to childbirth (ergotrate, serological test and blood typing). There was no previous history of jaundice.

In January of 1956, the mother (then about one week pregnant) visited the family home of one of the relatives who had recently recovered from infectious hepatitis. At about the same time, the father visited the home of a second relative who had two young children with clinical jaundice. The father took the youngest daughter, age 7, with him, but she did not, supposedly, enter the family home.

Approximately 38 days later, the 7-year-old daughter became ill, with initial nausea, vomiting

and epigastric distress. She became jaundiced within 72 hours after onset of symptoms. One week later the mother experienced marked epigastric pain which persisted approximately 24 hours. At that time she was in the second month of gestation and attributed these symptoms to her pregnancy. In five previous pregnancies, however, she could not recall similar symptoms. There was no subsequent history of jaundice, change in bowel habits, or change in the color of stool or urine.

On April 4 (28 days after the mother was ill), the 11-year-old son first demonstrated signs and symptoms of infectious hepatitis. A cousin had visited the family home approximately two days before the 11-year-old boy first became ill, and he subsequently was stricken 31 days after initial contact. A 12-year-old sister, the third of the three siblings to have clinical hepatitis, became ill approximately 26 days after the onset of her brother's illness.

The mother cared for her children throughout their illness and denies any further history compatible with infectious hepatitis. Her pregnancy was without further incident, and on July 20th she first noted irregular uterine contractions. Approximately 24 hours later she was admitted to a local hospital. Admission findings were: serology negative, no previous history of transfusions, no exposure to toxic agents, blood type A, Rh positive (husband same), hematocrit 38, urine "normal."

Two hours following admission, a living "mature" male infant was delivered with forceps. Parturition was otherwise normal, although it was noted that a gush of bloody amniotic fluid occurred immediately following delivery. The mother's postpartum course was essentially uneventful.

The infant was described grossly as normal. The birth weight was 5 lbs. 13 ounces, length 19.5 inches. He was noticeably cyanotic and had a grunting type respiration with marked contractions evident during each respiratory cycle. His cry was depressed. A considerable amount of mucus was removed from the oral cavity. The heart rhythm was normal with no murmurs evident. Moist rales were heard over "all" lung fields (according to one observer). The infant was placed in a moist isolette, supplied with oxygen, and stimulated by movement every half-hour. His course was steadily downhill. He remained cyanotic, with grunting respiration, depressed cry and minimal response to stimulation. An intracranial lesion was suspected. The infant expired 31 hours postpartum, in spite of heroic therapeutic measures.

Autopsy findings were as follows:

Pathology*: The body of the male infant appeared dusky greyish in color, with no evidence of jaundice. There was no manifestation of edema

*We are indebted to Dr. Shelley A. Swift, Pathologist, St. Mark's Hospital, Salt Lake City, Utah, for the report of the pathological examination.

or recent injury. The lungs, appearing small without gross evidence of aeration, were the outstanding finding on gross examination. They were said to "fairly float" to the surface when placed in water. On section they appeared reddish in color, much like liver tissue. Although the trachea and bronchi contained "much" mucus, there was no indication of obstruction. The liver was not enlarged and had a smooth capsule. The liver was pale brownish in color, with parenchyma soft in consistency, showing no sign of gross abnormality on section. There was mild evidence of hemorrhage into the tissues of the scalp, with some edema. Although there was some blood-staining between the arachnoid and the dura, there was no apparent actual collection of blood. The cerebellar tissue was soft in consistency but on section did not demonstrate hemorrhage or focal lesion. The tentoria were free from tears.

The myocardium, thymus and kidney were considered essentially normal for a premature infant. The spleen was congested. The lungs showed considerable congestion and atelectasis. The majority of the liver microsections examined were considered essentially normal. The lobular pattern was well preserved; however, there was considerable hematopoiesis within the sinuses of the liver cords. Fine vacuolization of the cytoplasm of all liver cells was evident, due mainly to fat deposits (fatty dystrophy due to anoxia). Necrosis was demonstrated in several microsections of the liver. These necrotic foci ranged in size from small, intralobular lesions to larger areas involving lobules. The areas of necrosis tended to spare adjacent cells, particularly around the central vein and portal triads. Hematopoietic cells were not affected by necrosis. The degree of maturity of the liver cells was that of approximately seven months development.

The necrosis found on liver sections was considered to be of viral etiology. Other possible factors resulting in necrosis of this magnitude, including hepatotoxic agents, eclampsia and blood incompatibility, were considered unlikely as based on clinical findings and past history. In view of the known maternal (and paternal) exposure to clinical hepatitis, with subsequent history of three cases among immediate family members, the pathologist's diagnoses were: prematurity, neonatal hepatitis and atelectasis.

Discussion

The deleterious effects of rubella upon the fetus during the first trimester of pregnancy are well known. The effects of infectious hepatitis are not as well established. It appears that there is an increased tendency toward prematurity and spontaneous abortions, particularly if infection occurs during the first trimester of pregnancy. Severe infections appear deleterious to the fetus, and

the literature contains many reports of fetal abnormalities associated with maternal hepatitis. These include the work of Kellog and Wesp and Mansell¹. The literature also cites numerous stillbirths and postpartum deaths associated with maternal hepatitis (Roth¹¹, Schiff). Postmortem findings are varied and inconclusive, but it is noted that atelectasis is often listed as a cause of death.

The normal fetal liver has many basic variations, with hematopoiesis within the liver sinuses being one of the more consistent findings. Changes associated with neonatal hepatitis vary considerably and appear non-conclusive. Schiff cites the work of Craig and Landing in the study of 20 infants who exhibited jaundice shortly after birth. The most common finding, seemingly pathognomonic of neonatal hepatitis, was giant cell replacement of liver cells with subsequent post-necrotic collapse and cirrhosis. Krainan and Lapan noted extensive intra-lobular necrosis and cirrhosis, and, as previously noted, Bellin and Bailit cite a case of infant portal cirrhosis associated with maternal hepatitis.

Transmission of the virus of serum hepatitis (virus type B) to siblings from a mother in the carrier state has been cited by many writers. Transmission of virus B in consecutive pregnancies is predicated on the long-standing viremia (often persisting up to 10 years after initial exposure). The work of Stokes, et al., gives evidence that the carrier state for both virus A and B infections exists. We believe the infectious agent in the case cited to be virus type A. This is based on the epidemiologic evidence which includes: exposure of both parents to known sources, clinical history of three subsequent cases of infectious hepatitis with jaundice and typical signs and symptoms in the children, and incubation periods in the three children in keeping with those of the type A infection. This contrasts with the longer (40-180 days) incubation periods for type B infections.

Summary

A case of probable transplacental transmission of infectious hepatitis (virus type A) from a subclinical case is discussed. This infection was presumably contracted during

the first trimester of pregnancy, from any one of multiple known sources. Although the mother had a "normal" course during pregnancy, she experienced marked epigastric pain and distress through a 24-hour period during the second month of pregnancy. There were no other signs or symptoms. An infant son was born at approximately 35 weeks gestation and died 31 hours postpartum from prematurity, atelectasis, and (as evidenced on microsection of the liver) from considerable intralobular necrosis. This was considered to be of viral etiology. In view of the family history, the exposure to known clinical cases of infectious hepatitis, and the microscopic findings in the fetal liver, this has been interpreted as compatible with a diagnosis of neonatal (congenital) hepatitis. •

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The intramedullary prosthesis in hip pathology

A research study of forty-five cases

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IF THIS WERE MERELY A REPORT of hip prostheses in 45 more cases there would be little, if any, justification for its presentation, but that is not the purpose. Pathology of the hip is a disabling condition for the person afflicted with it, and means of controlling or overcoming it have been sought throughout the ages. This is evidenced by the archaeologists' unearthing of bones that have been scraped, trephined or curetted or, in general, man-handled. It is still a problem, although in recent years the orthopedic surgeons have been able to make significant contributions to the knowledge and management of this condition because of the development of antibiotics, mechanical devices, and technics

which augment restoration of function by reducing the danger of infection. It is known that anatomic repositioning of bony fragments and relationships leads to nearly normal function. This is particularly applicable to hips.

Septic involvement of the hip of many infants and young children results in mal-function. Certain developmental changes lead to crippling conditions within the joint resulting in a permanent limp during adolescence and marked arthritic involvement in later life. Trauma leaves its imprint on the hips of many and causes malfunction, pain and deformity. The price of living is "wear and tear" on the body, and no place in it is this "wear and tear" noted more than in or about joints, the hip joint especially. At the

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present time, there are no means of retarding the process of aging. Lameness, pain, disability, limitation of function with subsequent limitation of activity and eventual retirement to chair, wheelchair or bed is the result.

In the rapidly moving, mechanical world of today, lessening of the number of hip disabilities is not foreseeable. On the contrary, since better roads lead to increased travel and the desire for speedier cars, injuries are bound to follow. Improvement in medical care, hospitals, and advances in research are prolonging the lives of the "oldsters," and the greatest number of traumatic hip conditions occur in the 65-95 year age group, because any one of its members is subject to a slip, a trip, or a fall due merely to fatigue or to a minor unnoticed obstacle which would be no hazard to a younger, more alert person. If such a person is between 65 and 75 years of age and has a good daily activity history, the fracture is usually, although not always, an intracapsular one. Older persons fall harder, and, as they make little or no attempt to catch themselves, the injury is usually a simple or comminuted intertrochanteric fracture of the femur.

It is a natural sequel of the longer life span and physical and mental improvement of the aged that more and more such persons will seek medical attention for relief of pain and disability, as will be the case for younger persons afflicted with the diseases of early life, especially congenital deformities, anatomic and developmental changes, the hip diseases of adolescence, middle age, and the "wear and tear" osteoarthritis.

In 1952, I reported 39 cases in which vitallium[†] cup arthroplasty of the hip had proved a helpful procedure¹. At that time, the history of the development of the vitallium cup was traced, and the rationale for its use was discussed. Subsequent experience with vitallium has strengthened my conviction that it is a valuable medium, but the cup prosthesis is not necessarily a satisfactory device for every condition or in every instance.

To be ideal, a prosthesis should be round so that it may serve as a substitute for the femoral head or head and neck. A number

of prostheses were developed and tested by the Judet brothers and other investigators both in this country and abroad². In 1952, Dr. Austin T. Moore of Columbia, South Carolina, reported the use of an intramedullary type vitallium prosthesis which he had developed with assistance of the Professor of Engineering at the University of South Carolina and the Chief Engineer of the Austenal Laboratories³. Since that time, Dr. Moore has modified the structure several times, and probably will continue modifying it until it resembles the head and neck of an average femur. In July, 1957, he reported a six-year study of 159 operations on 153 patients⁴.

Although reports from many large clinics and medical schools have been disappointing regarding end results, in my experience, the Austin Moore intramedullary vitallium prosthesis has been one of the best prostheses available at the present time. Poor results in such large institutions may be attributable to several factors—(1) the kind of patient seen in such an intrinsically "clinic" type organization because of nutritional state, case and family history and presence of infection; (2) the surgery was performed by anyone available whether especially skilled in the procedure or not, in fact, often by whomever was "on service" or by any resident who "had not yet done one"; and (3) the conditions under which surgery was performed.

Because I believe that, to date, the Austin Moore type is one of the best prostheses available, I feel compelled to report my experiences with it. The following report is a clinical study of 45 consecutive private hip cases operated upon between October 10, 1952, and September 17, 1958, in which the prosthesis used was the Austin Moore intramedullary vitallium type. This represents a follow-up study of these cases. The newest was of one year's duration.

Some of the ground work of this rather extensive clinical orthopedic research was done while I was Senior Visitant on Orthopedic Service of the University of Colorado School of Medicine. This was started in October, 1952. In addition, cases were operated upon and results tabulated at the Denver General, the Veterans Administration, and Fitzsimons Army Hospitals, and the person-

[†]Austenal, Inc., 224 East 39th St., New York 16, N. Y.

nel of all those institutions aided materially in the study. Although the study originated during a period of service at the University of Colorado School of Medicine and was furthered by the previously mentioned hospitals, all of the cases reported here were private patients.

A review of the data reveals that:

1. Forty-five surgical procedures were performed on 44 patients.
2. There were 16 males and 29 females.
3. Ages ranged from 8 years (one patient) to 92 years (two patients), and
4. Thirty-two patients were 60 years of age or over at the time of operation with seven of these over 80 years of age. There was no one particular occupational group; on the contrary, there were housewives, farmers, students, teachers, secretaries, and a number of retired persons.

The variation in volume of operations performed during the years of the study has no obvious significance unless weather (ice and snow) was a factor in the two peak years, 1953 and 1958. The year 1952 should be disregarded because the one case reported was operated upon in October, and the first nine months are ignored in this report. Tabulated by year in which the surgery was done, there were 15 operations in 1953; 4 in 1954; 5 in 1955; 6 in 1956; 9 in 1957, and 5 in 1958. These, plus the one in 1952, total 45 consecutive procedures.

In addition to the above cases, I operated upon one patient at the Veterans Hospital, two at the Denver General Hospital, and one at Fitzsimons Army Hospital. In ten other instances, consultation and assistance were rendered. Inasmuch as the convalescent period of these 14 additional cases was not personally supervised by me, they were not included in this detailed study of results. Also not included were any additional prostheses operated since September 17, 1958.

Planning

Patients should be chosen carefully to obtain the best possible end result with this elective procedure. If the patient has a fracture, of course, nailing should be considered. If, all factors being considered, a better result will be obtained by nailing, it should be done. If not, a prosthesis is to be considered.

To insure good surgical results and avoidance of complications the orthopedist profits by consultation with a medical man. Certain routine laboratory tests are valuable aids to good results. These are: B.U.N., blood and urine studies, and in older patients, a chest roentgenogram and EKG as well. Also, since *individualization is essential* any other laboratory procedures or supportive measures should be utilized if indicated.

Sir Reginald Watson-Jones is responsible for the axiom, "... Poor results from nailing are the result of poor nailing." This is true, also, in the use of hip prostheses. The operation for the proper placement of the vitalium prosthesis requires careful, well-planned preparation, the proper instruments, various sized prostheses at hand to permit the proper choice for size, and mechanical skill. The patient usually comes to surgery with five to eight pounds of Buck's traction in place on the extremity. The operation is performed on a regulation operating table with kidney supports, and, depending on the patient's age, there is usually preoperative medication.

Prognosis

Statistics gleaned from careful, documented studies of the handling of hip fractures in elderly subjects indicated that: (1) 10 per cent will be fatal; (2) of the remaining 90 per cent, union can be expected in about 55 per cent by usual methods; (3) union will occur in 72-78 per cent if some nailing method is used; and (4) of those in whom union takes place, 44 per cent obtain

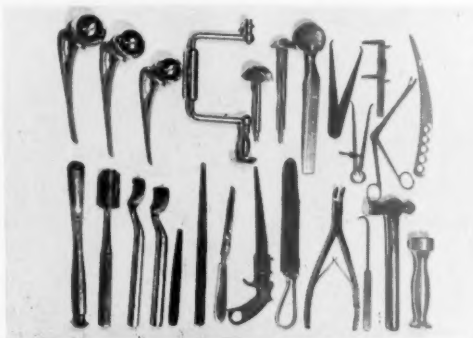


Fig. 1. Instruments needed for prosthesis insertion: Bottom row—gouges, drivers, saws, rongeur, mallet. Top row—three sizes of Austin Moore prosthesis, reamers, calipers.

a good result without arthritis, aseptic necrosis, or other general complications. The reduction of the percentage of good results and eventual union is due to the subcapital fractures.

Preliminary procedure

Being able to rely on a skilled anesthesiologist for endotracheal anesthesia relieves the orthopedist of considerable anxiety as to the patient's welfare. Intubation and subsequent rotation of the patient onto one side are the usual routines, as is having blood in readiness attached by a 20-gauge needle. The previously prepared pubic-perineum and hip area is vigorously scrubbed. Preparation (scrubbing included) and complete draping of the firmly held leg so that all possibility of contamination is virtually eliminated requires about 30 minutes. Depending on the

type of injury, the surgery itself may require from 50 to 70 minutes although 45 minutes may suffice for an uncomplicated, fresh, intracapsular fracture. Older persons seem to withstand surgery well and, to date, no case has been lost on the table, within 48 hours following surgery, or as the result of the surgery itself.

The operative procedure

My approach to the hip joint is through a low posterior incision measuring about 10 inches, done with the patient lying on the unaffected side, the hip slightly adducted and flexed at a 45 degree angle. After the incision is made, the fibers of the gluteus maximus are split and retracted posteriorly and the sciatic nerve is exposed and covered by the short external rotators. The external rotators involved are the superior and in-



Fig. 2. Roentgenogram of typical intracapsular fracture of neck of femur and prosthesis well placed inside capsule and femur.



Fig. 4. Good Smith-Petersen nailing, but painful and early aseptic necrosis beginning (increased density); prosthesis well placed.



Fig. 3. Roentgenogram of custom made prosthesis, six years postoperatively; destruction of head, neck and trochanter evident. Note evidence of movement of prosthesis within shaft.

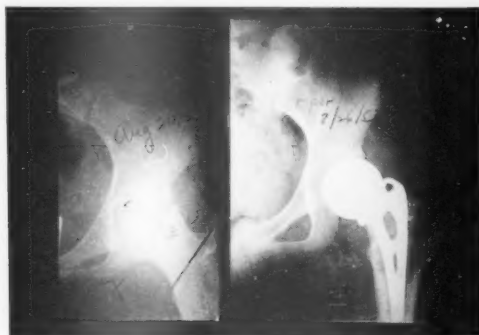


Fig. 5. Roentgenogram of aseptic necrosis of femur in 13-year-old girl; result of trauma; hip painful, range of motion 40 per cent of normal; prosthesis; patient now 5½ years postoperatively.

ferior gemelli and the obturator internus which are removed from the femur. The quadratus femoris is also removed, and all four muscles are withdrawn laterally to cover the sciatic nerve. Thus it is not harmed. The capsule is exposed and opened by a "T" incision. The periformis is usually removed to allow free access to the capsule, and with it opened, the femur is rotated internally, adducted and pushed posteriorly. This exposes the fracture site, and the head is easily removed by Smith-Petersen gouges. The neck is examined, and the surrounding structures are elevated distally. The removed head is measured with calipers to determine the proper size prosthesis. *One a little too small is preferable to one a little too large* as the latter may induce pain. The head of the prosthesis is then tested within the acetabulum, and if it is firmly held and difficult

to dislodge by direct pull yet freely movable, it is "just right." The prosthesis is fitted to the shaft by several personal maneuvers and the inside of the shaft reamed out just right and in the exact rotation. Bone is taken from the removed head with a rongeur and fills in the filigreed areas of the Austin Moore prosthesis, and the prosthesis is driven home. Extreme care is exercised not to break the cortex of the femur. After the acetabulum has been inspected and most of the remnants of the teres ligament have been removed, the head is replaced. (Special treatment is given the acetabulum in various conditions for which the operation is applicable, such as flat acetabulum found in malum coxae senilis or deformed acetabulum from any cause.) With the head in place the capsule is closed. Black silk or heavy chromic catgut seems conducive to early ambulation, and I



Fig. 6. Roentgenograms showing that single screw did not hold; head slipped; prosthesis successful; patient able to resume farming.



Fig. 8. Poor result with nailing of intertrochanteric fracture; split head; aseptic necrosis; marked disability. Prosthesis virtually created a perfect hip with normal motion.



Fig. 7. Old osteoarthritis in 68-year-old farmer; prosthesis gave greatly improved motion, considerably less pain, good hip motion.

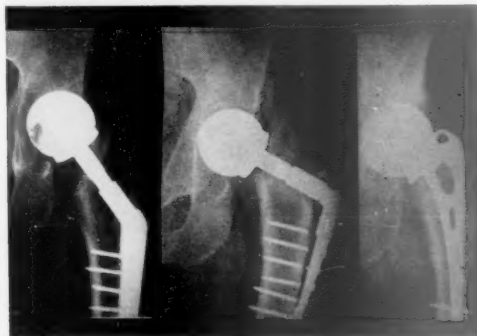


Fig. 9. Original Collison prosthesis, dislocated, replaced, screws broke; Austin Moore permitted 45-year-old carpenter to work full time for 5 1/2 years.

favor the silk. Each layer is closed without incident. Following the last skin stitch, the patient is rotated onto the back again and traction reapplied; five pounds is sufficient. It is gratifying that at this point the "leg rolls over and out" thus obviating the danger of dislocation or the need for a rotation strap during the immediately subsequent 48-hour period. Traction is used only as a prophylactic safeguard to prevent dislocation during the immediate postanesthesia painful stage.

Immediate postoperative period

As a rule, the postoperative period is uneventful. Usually the patient receives one to two pints of blood during surgery, and pain is controlled. A 10-25 degree back rest and occasionally a 10-30 degree knee rest are permitted following the removal of traction which occurs the second 24 hours. Bed ac-

tivity is encouraged. The patient is regarded as a bed patient and is ready to dangle after five days; up in a chair at seven to 10 days; weight-bearing with help after the eleventh day, and beginning two days after removal of the stitches, is put into a Hubbard tub every other day. On alternate days, the patient is taught to stand and, in the case of fresh fractures, unassisted weight-bearing may be begun at 10 to 15 days. Depending on the progress made and the type of involvement, the patient may leave the hospital in 18-21-28 days.

It must be borne in mind that the foregoing applies to routine fresh fractures only. In cases requiring reconstruction of the acetabulum, for example, old septic hip as in Case No. 24, initial weight-bearing date, speed of ambulation, and support must be adjusted to the individual situation.

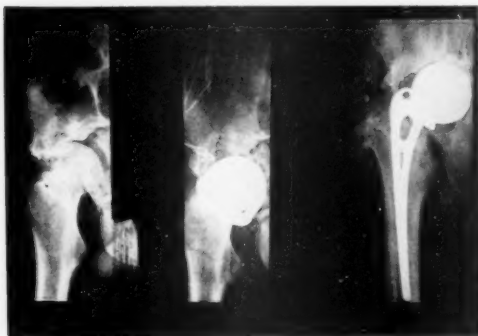


Fig. 10. Central acetabular protrusion treated by traction, bone graft and cup, and finally with 2 1/4" Austin Moore. Five years postoperatively. No pain and fair range of motion.



Fig. 12. Roentgenogram of pelvis and hips of 81-year-old man with bilateral prostheses, done 24 months apart. Walks without crutches or cane.



Fig. 11. Roentgenogram showing perfect result; response within femoral shaft; regular weight-bearing; may be slight motion within shaft; patient, aged 72 years.



Fig. 13. Roentgenogram of pelvis and hips of 77-year-old woman with rheumatoid arthritis; bilateral prosthesis successful.

Convalescence

The convalescent period is gratifying also as the patient just "gets better and better." Pain may bother some persons, but it is controlled by aspirin which may be discontinued eventually. In those instances in which the acetabulum has been reamed out, weight-bearing is guarded as long as is necessary, up to four or six months. However, partial weight-bearing is encouraged, and activity is recommended.

To date it is not known how much pounding a prosthesis will stand. Some which have been in place five years or more seem to be functioning well. It is known that persons aged 65 years or older are good candidates if they can control their terminal life activity.

Fresh fractures may, of course, still be nailed, and no one advocates not doing so. In certain cases, however, a prosthesis is preferable as it is known, for instance, that there is less than a 45 per cent chance of an all-around good result from nailing a high subcapital fracture.

The types of conditions which may be considered good immediate candidates for an intramedullary prosthesis are:

I. Fracture, neck of femur, especially subcapital

1. Acute fresh
2. In elderly or weak persons, or persons who have never used crutches and probably could not learn to do so
3. Non-union
4. Aseptic necrosis of head
5. Extremely heavy or obese patients
6. Persons having upper extremity disability
7. Poor result from previous therapy

II. Arthritics

1. Osteo
2. Rheumatoid

III. Old Septic Hips

IV. Old Congenital Malformed Hips

V. Traumatic Hips

1. Deformed head or acetabulum
2. Painful

VI. Neurologic and Psychologic Disabilities

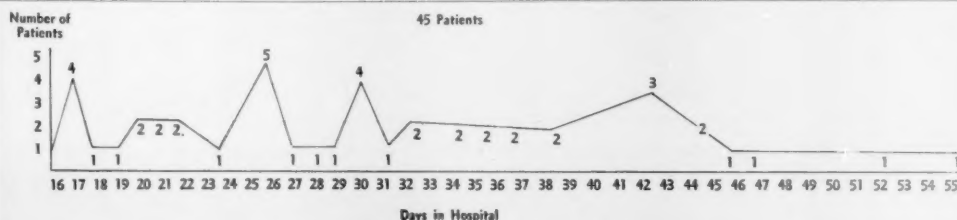
1. Hemiplegia
2. Parkinson's Disease
3. Agitated, demented, melancholic, uncooperative and senile persons.

Individuals in whom heredity, environment, nationality and character training have combined to create stability and equanimity, who are not given to complaining about trivial disturbances and discomforts withstand the procedure well and usually obtain good results.

Although great strides have been made toward rehabilitation of individuals with hip disabilities, there remains much to be done about the problem. Refinement of prostheses to more nearly simulate the human hip is one means of solving part of the problem and experimentation and clinical tests of various devices, by many investigators, is another.

In my experience and that of my associate, Dr. Charles W. Brown, although the F. R. Thompson and the Austin Moore have been the best available for some time, even they do not completely fulfill the necessary requirements. Those requirements stem from the patients' complaints, most of which are focused on unexplained pain either general or on the inner side of the knee or the lateral side of the thigh. Or there may be just a

Length of hospital stay in days



sensation of insecurity. Some orthopedists think that these complaints may be the result of movement of the prosthesis inside the femur. If that is true, the firmer the prosthesis can be made to fit, and the more solidly it adheres to the inside of the intramedullary area of the femur, the more stability will result.

| Complications | |
|---|---|
| Psychosis | 2 |
| Dislocation of prosthesis..... | 1 |
| Anuria (artificial kidney) | 1 |
| Cancer | 1 |
| Secondary adductor tenotomy necessitated | 2 |
| Infection | 1 |
| Total | 8 |

Summary and conclusions

A research study is presented of 45 consecutive private cases of hip disability of varying etiology operated upon between October, 1952, and September, 1958, in which vitallium prostheses were used. The data are

analyzed as to location, cause and type of disability (fracture, arthritis, sepsis, etc.), type of prosthesis (Fred Thompson, Austin Moore, etc.), complications (psychoses, dislocation of prosthesis, anuria, etc.), and results.

The results were evaluated in terms of length of hospitalization (longest, 55 days, one case; shortest, 16 days, one case; average, 30.2 days); range of motion (50-100 per cent); ambulation (limp, short leg, abductor gait, etc.); support (crutches and/or cane); pain (from none to severe and on motion only, etc.), and patient reaction (indifferent, satisfied, enthusiastic, etc.).

There was one failure, because an infected hip was operated too soon after a skin slough over an old arthrodesed hip. There were no fatalities due to the surgery.

Restoration of function and relief from disability and discomfort must be the goals set for the orthopedists in handling hip pathology. Close observation of clinical material and constant vigilance to determine more effective methods and technics, augmented by publication of results and comparison of experience, are the tools which will make for improved methods of therapy and better results for the patient. •

references on page 95

| Summary Evaluation | | | |
|--------------------|---------|-----|---|
| Total Result | Hips—45 | | |
| Excellent | 20 | (a) | pain—none or very little |
| | | (b) | limp—slight, may or may not use cane |
| | | (c) | range of motion—85 to 100 per cent of normal |
| | | (d) | patient—satisfied and enthusiastic |
| Good | 18 | (a) | pain—dull ache, aspirin controlled |
| | | (b) | limp—mild abductor gait, with or without cane |
| | | (c) | motion—70 to 90 per cent of normal |
| | | (d) | patient—well satisfied |
| Fair | 5 | (a) | pain—present but much less |
| | | (b) | limp—cane all the time, crutch part time |
| | | (c) | motion—slight, painful—50 to 75 per cent normal |
| | | (d) | patient—satisfied with the improvement |
| Poor | 1 | (a) | pain—bothersome on weight-bearing |
| | | (b) | limp—cane all the time, crutches part time |
| | | (c) | range of motion—25 to 35 per cent, slightly painful |
| | | (d) | patient—improved range of motion, no worse |
| Failure | 1 | (a) | skin over attempted hip arthrodesis broke down, infected and six months later drainage developed from prosthesis site |
| Death | 0 | | |

Statistical tabulation of all cases from October 10, 1952, through September 17, 1958

| PATIENT Case No. | PATIENT Age & Occupation | SURGERY Date & Indication | PROSTHESIS | HOSPITAL STAY in days | RESULT | MOTION | Limp | WALKING | Support | PAIN | REMARKS (Including last contact) |
|---|--------------------------------|--|--|-----------------------------|--------------|---------------------|--|-------------------|-------------------|-------------------------------------|--|
| 1—Mrs. M. V. 67 yrs. Housewife | | 10/10/55—Rt. In- trochanteric fracture, 3 yrs. previous. | made-to-order vitallium "end-on" Thompson type 1 3/4" | 42 | Fair to good | 75% | Abduction gait. Foot slightly ex- ternally rotated | Cane or crutch | Cane or crutch | On sudden motion only | 9/26/58—at patient's home, satisfied; gets about without support at home. 3/4" short- ening. |
| 2—Mrs. I. N. 58 yrs. Sorority house- mother | | 3/9/53—Fracture, neck right femur. 6 yrs. previous Non-union | 1 1/2" Austin Moore Vitallium | 26 | Excellent | 100% | Very slight | None | None | None | 5/16/56 at office; happy, working as resident man- ager of a home for senior citizens. |
| 3—Mrs. E. M. 73 yrs. Housewife | | 3/4/53—Fresh fracture, neck, left femur | 2" Austin Moore | 32 | Excellent | 100% | None | None | None | None | 10/2/58 at office; 5 1/2 years after surgery in excellent health and happy. |
| 4—Mr. G. M. 73 yrs. Rancher and farmer | | 4/1/53—Fracture, neck of right femur, 8 mo. previous | 2" Austin Moore | 17 | Excellent | 100% | Mild abduction gait | Cane | Cane | Very little | 5/18/53 at office; working on farm but cancer was bothering him. Died July '53 of stomach cancer. |
| 5—Mrs. G. S. 42 yrs. Housewife | | 4/2/53—Fracture, neck rt. femur, 2 yrs. previous non-union | 1 3/4" Austin Moore | 21 | Good | 80% | Mild abduction gait | Cane | Cane | Moderate to severe on walking | Abductor tenotomy done to lessen abduction after pros- thesis inserted. 10/29/58 — patient has good result. |
| 6—Mrs. M. C. 79 yrs. Ex-house- wife | | 4/24/53—Rt. hip nailed 4 yrs. pre- vious. Smith- Peterson nail. Aseptic necrosis | 1 1/2" Austin Moore | 26 | Excellent | 100% | None | None | None | None | 11/3/53 — 10 months after was walking without cane, even walking to Red Rocks. Pain free. 2/28/54 Died: Coronary thrombosis. |
| 7—Mrs. V. G. 55 yrs. Private Secretary | | 5/21/53—Old bi- later congenital left hip with marked coxa valga. | 2" Austin Moore | 34 | Fair to poor | 80% some pain | Moderate abduc- tion gait pain | Cane | Cane | Moderate to severe on walking | 6/17/58 at office; poor case selection; had relaxed mus- cles and no acetabulae. |
| 8—Mrs. A. H. 75 yrs. Housewife | | 8/4/53—Fracture, head, left femur, 3 yrs. previous. Aseptic necrosis | 1 1/2" Austin Moore | 36 | Good | 75% | Slight | Cane | Cane | Mild | 10/2/58 at office; low pain threshold, patient happy, lives with daughter. |

| | | | | | | | | |
|--|---|---------------------|----|------------------------|------|--------------------------------|---|---|
| 9—Mrs. E. B. 37 yrs. Housewife | 8/6/53—Fresh (within 4-5 days), oblique fracture, neck left femur | 1 3/4" Austin Moore | 26 | Excellent | 100% | None | None | 9/28/58—Very active, can run, dance, etc. |
| 10—Mr. V. W. 66 yrs. Retired RR conductor | 8/14/53—Trau- matic arthritis, occupational left hip. Pain of 12 yrs. duration | 2" Austin Moore | 30 | Fair to good | 80% | Slight | Cane | 7/19/54—Unable to trace— abductor tenotomy per- formed 12/1/53. |
| 11—Miss M. D. 13 yrs. Schoolgirl | 8/24/53—Asceptic necrosis, left fe- mur head from intertrochanteric fracture 3 yrs. previous | 1 3/4" Austin Moore | 17 | Good to ex- cellent | 90% | Slight Trendel- enberg | None | 12/15/58—1/2" shortening, good function. |
| 12—Mrs. A. R. 76 yrs. Ex-house- wife | 9/8/53—Fracture rt. hip 29 mo. previous with absorption in neck | 2" Austin Moore | 20 | Good to ex- cellent | 80% | Moderate Tren- delenberg | Cane & crutch de- pending on terrain | 10/3/58—Up, about and ac- tive at age 81. (For 2 1/2 yrs. nonunion and no neck.) |
| 13—Mrs. P. G. 71 yrs. Housewife | 11/1/53—Fresh subcapital frac- ture, neck, left femur | 1 3/4" Austin Moore | 20 | Excellent | 100% | None | None | 10/2/58 at office—Lives in 2nd floor apartment; walks, climbs stairs; is pain free. |
| 14—Mrs. E. W. 63 yrs. Retired teacher | 11/4/53—Osteo- arthritis, rt. hip of long standing | 1 1/2" Austin Moore | 44 | Fair to good | 90% | Mild Trendelen- berg | Cane occa- sionally | 10/2/58—(Card) Drives car. Old arthritic hip is stiff, eburnated and painful. |
| 15—Mr. C. C. 45 yrs. Carpenter | 11/5/53—39 mo. previous fracture left hip. 1 yr. later fracture mid-neck, femur | 2 1/2" Austin Moore | 34 | Good | 69% | Positive left Trendelenberg | None | 10/2/58—Two Collision pros- theses had been unsucces- ful. |
| 16—Mr. R. B. 60 yrs. Contractor | 11/25/53—Ascep- tic necrosis, rt. following Smith- Petersen nailing 44 mo. previous | 1 7/8" Austin Moore | 17 | Good to fair | 90% | Mild Trendelen- berg | Cane | 10/2/58—Collision prosthesis ineffective when used 2 yrs. previous to this surgery. |
| 17—Mr. D. A. 20 yrs. Student | 7/22/54—Rheu- matoid arthritis, rt. hip | 2" Austin Moore | 44 | Good | 85% | Positive Trendel- enberg | English crutches | 10/2/58—Cooperative, hap- py patient; taking colloidal gold most of time. |
| 18—Mr. D. A. 21 yrs. Student | 10/14/54—Rheu- matoid arthritis, left hip | 2" Austin Moore | 38 | Good | 80% | Left hip, flexion limp | English crutches | 10/2/58—Attends college classes, drives a car. |
| 19—Mr. E. R. 63 yrs. Osteoarthritis rt. | 11/12/54—Severe | 2" Austin Moore | 42 | Excellent | 90% | None | None | 10/2/58—Working every day, standing constantly. |

[illegible]

| PATIENT Case Age & No. Occupation | SURGERY Date & Indication | PROSTHESIS | HOSPITAL STAY in days | RESULT | MOTION | WALKING Limp | Support | PAIN | REMARKS (Including last contact) |
|--|--|---------------------|--|------------------------|--|-----------------|--------------------|-----------------------|--|
| 28—Mrs. I. A. 80 yrs. Retired school teacher | 8/2/56—Fracture, neck, rt. femur, nailed 4 yrs. pre- vious, non-union | 2" Austin Moore | 30 | Good to ex- cellent | 95% | Mild abductor | Cane, part time | None | 10/2/58 at office. Coopera- tive, wanted to drive car; successful. |
| 29—Mr. H. H. 74 yrs. Retired in- dustrialist | 9/18/56—Sub- capital fracture, neck, left (hemi- plegic side) femur 15 days previous | 1 1/8" Austin Moore | 26 | Excellent | 60% (normal for hemiplegia) | Hemiplegic gait | Cane | None | 3/1958—Up and about; ex- cellent rehabilitation in minimum time. |
| 30—Mrs. E. A. 76 yrs. Ex-house- wife | 10/18/56—Fresh subcapital frac- ture neck left femur | 1 1/8" Austin Moore | 27 | Excellent | 85% | Mild | Cane | None | 11/22/56—Up, walking, re- habilitated. |
| 31—Miss I. M. 58 yrs. R.N.—Pri- vate duty | 10/23/56—Frac- ture, head, rt. femur, Smith- Petersen nail, 5 1/2 yrs. previous. Aseptic necrosis | 1 3/4" Austin Moore | 55 (4 wks. addl. due to kidney complications) | Excellent | 90% | Very slight | None | None | 7/1958—Anuria developed following insertion of pros- thesis; artificial kidney used; recovery; active and working again full time. |
| 32—Mrs. E. W. 63 yrs. Housewife | 1/16/57—Frac- ture, neck, left femur, nailed 19 mo. previous; aseptic necrosis | 1 1/8" Austin Moore | 17 | Excellent | 95% | None | None | None | 9/29/58—card: Condition excellent. |
| 33—Mrs. J. K. 66 yrs. Hotel owner | 1/18/57—Severe traumatic left osteoarthritis | 2" Austin Moore | 46 | Good (Satisfactory) | 80% | Mild abduction | None or cane | Very little | 11/1958—Office: Patient al- ways uncooperative, but im- proved steadily; almost pain free. |
| 34—Mrs. J. O. 71 yrs. Housewife | 5/31/57—Severe traumatic arthri- tis, left hip. | 2" Austin Moore | 36 | Good | 90% | Mild abduction | Cane | Slight | 7/1958—Limitation of hip joint lessened; slight sub- jective pain. |
| 35—Mr. R. W. 30 yrs. Driller | 8/9/57—Disloca- tion left hip 6 yrs. previous, aseptic necrosis | 2" Austin Moore | 42 | Poor | 25 to 35% (Crutches needed to walk)? | Crutches | | Moderate to severe | 10/1958—Fusion attempted 10/24/56; drainage from prosthesis area, controlled by antibiotics—prosthesis in place still. |
| 36—Mrs. E. S. | 10/2/57—Rt. fe- | 1 1/8" Austin Moore | 35 | Excellent | 90% | Very slight | None | None | 10/1958—Malunion and ne- |

| Driller | yrs. previous, aseptic necrosis | | 1 1/2" Austin Moore | 35 | Excellent | 90% | Very slight short leg | None | None | 10/1958—Malunion and necrosis had resulted because nail protruded from neck into joint. |
|---|--|--|---------------------|----|-------------------|------|--------------------------------|-----------------------------|------|--|
| 36—Mrs. E. S. 61 yrs. Housewife | 10/2/57—Rt. femur head nailed 29 mo. previous, aseptic necrosis | | 1 1/2" Austin Moore | 35 | Excellent | 90% | Very slight short leg | None | None | 10/2/58—Condition excellent; patient is physically old. |
| 37—Mrs. D. T. 80 yrs. Housewife | 10/31/57—Intra-capsular fracture, neck, rt. femur, nailed 6 mo. previous, malunion | | 1 1/2" Austin Moore | 30 | Excellent | 85% | Unsteady (age) | Cane for age, needs support | None | 10/2/58—Free range of motion, slightly painful hip; walks 30-40 blocks daily. |
| 38—Mr. F. E. 69 yrs. Bowling hall attendant | 11/12/57—Severe traumatic arthritis rt. hip | | 2 1/4" Austin Moore | 35 | Good to fair | 80% | Mild abduction | None to cane | Mild | 10/2/58—Farming again. |
| 39—Mr. H. G. 60 yrs. Farmer | 11/13/57—Mid-neck fracture left femur nailed 8 mo. previous; non-union | | 2" Austin Moore | 29 | Excellent to good | 90% | Mild abduction gait, short leg | Cane | Mild | 7/1958—Patient was anxious to reduce hospital stay, co-operated, end result good in short time. |
| 40—Mrs. H. S. 77 yrs. Prof. cook | 11/16/57—Fresh subcapital fracture, neck left femur | | 1 1/2" Austin Moore | 28 | Excellent | 100% | None | None | None | 9/26/58—Patient was disoriented at times, result good nevertheless. |
| 41—Mrs. P. S. 92 yrs. Ex-housewife | 4/28/58—Fresh subcapital fracture, neck left femur | | 1 1/2" Austin Moore | 22 | Excellent | 95% | Mild short leg | None | None | 9/28/58—Uncooperative old patient, somewhat disoriented; speed essential. |
| 42—Mr. H. K. 92 yrs. Retired | 6/6/58—Fresh intra-capsular fracture neck left femur | | 2" Austin Moore | 24 | Excellent to good | 85% | Normal amt. for age and pain | No cane | Mild | 10/2/58—Before operation could not stand; in severe pain, feet criss-crossed. Patient pleased with result. |
| 43—Mr. E. S. 68 yrs. Farmer | 6/26/58—Right bilateral severe traumatic osteoarthritis | | 2" Austin Moore | 18 | Good | 75% | Moderate | None to cane | Mild | 12/5/58—Early rehabilitation. |
| 44—Mrs. R. P. 74 yrs. Housewife | 7/21/58—Fresh subcapital fracture, neck right femur | | 1 1/2" Austin Moore | 21 | Excellent | 100% | None | None | None | 12/5/58—Because wife had had hip fracture, patient fearful of prolonged disability; rapid recovery. |
| 45—Mr. J. Y. 81 yrs. Retired jeweler | 9/17/58—Fresh subcapital fracture, neck left femur | | 1 1/2" Austin Moore | 22 | Excellent | 100% | None (patient unsteady) | None, cane for balance | None | |

Analysis of 45 completed procedures in 44 patients

Female, 28; male, 16.

| ETIOLOGY | PAIN | | PROSTHESIS | | | AMBULATION | | | PATIENT REACTION |
|--|----------|----------|----------------------|--------|----------|----------------------------|--------------|-----------------|--|
| | No. Hips | No. Hips | Type | Size | No. Hips | Limp | No. Patients | Support | |
| Fracture: | | | | | | | | | |
| Neck of femur: | | 20 | F. Thompson | | | None | 8 | None | Very happy and enthusiastic 25 |
| Fresh intracapsular, mainly subcapital | 13 | 14 | custom made..1 7/8" | 1 7/8" | 1 | Short leg | 14 | None or cane | Fairly happy 10 |
| Ununited | 5 | 7 | Standard | | | Abduction | 14 | Cane | Satisfied 6 |
| Secondary, absorption and displacement | 3 | 1 | Austin Moore..2 1/4" | 2 1/4" | 3 | Requiring crutches or cane | 8 | Cane or crutch | Unhappy 2 |
| Aseptic Necrosis: | | | Same | 2" | 16 | | | Canadian crutch | Would not repeat surgery. Sorry it was done..... 1 |
| Head of femur secondary to nailing plus union..... | 6 | 3 | Same | 1 7/8" | 17 | | | Crutches | |
| Arthritis: | | | Same | 1 3/4" | 7 | | | | |
| Degenerative | 5 | | Same | 1 5/8" | 1 | | | | |
| Rheumatoid (one patient both hips) | 2 | | | | | | | | |
| Traumatic | 4 | | | | | | | | |
| Congenital Dysplasia | 2 | | | | | | | | |
| Sepsis, Old | 1 | | | | | | | | |
| Failure: | | | | | | | | | |
| Prosthetic—wrong type | 2 | | | | | | | | |
| Fusion | 1 | | | | | | | | |
| Dislocation: | | | | | | | | | |
| Central traumatic | 1 | | | | | | | | |
| TOTAL | 45 | 45 | | | 45 | | 44 | | 44 |

Low-cost penicillin for prevention of rheumatic fever*

John A. Lichty, M.D., M.P.H., and Argyle Seikel, M.P.H., Denver

A nickel-a-day program for prevention of strep infections in known rheumatics has been enthusiastically received in Colorado.

SUFFICIENT EVIDENCE HAS ACCUMULATED from medical research to establish the successful prevention of recurrent attacks of rheumatic fever by some form of continuous drug prophylaxis for beta hemolytic (Group A) streptococcal infections^{1, 2, 3}. In view of this, the Council on Rheumatic Fever and Congenital Heart Disease of the American Heart Association has, from time to time, released general statements to the medical profession indicating various drugs and dosage schedules for the practical application of this principle⁴.

In spite of these efforts to protect "rheumatic" individuals from recurrence of rheumatic fever, with its potential for cardiac damage, studies in Colorado⁵ and elsewhere⁶ have indicated that only a small fraction of the population at risk are receiving the benefits of this form of preventive medicine. In view of this, a grass-roots type of state program for prevention of rheumatic heart disease was developed in 1956 by the Colorado Heart Association and adopted by the State Department of Public Health and the State Medical Society. This program was kept sufficiently flexible to be adapted to any particular community's needs and resources, with emphasis on the cooperative planning

of physicians, public health personnel and informed citizens. It proposed four phases of operation — education, diagnostic accuracy, prevention of rheumatic recurrences and prevention of first attacks.

As communities started to implement that phase of the program dealing with prevention of recurrences, it became apparent that the cost of continuous drug prophylaxis was a serious deterrent, particularly when daily use of oral penicillin was recommended by the practicing physician. The cost of this drug, over a projected period of many years, was beyond the means of families in the large "middle income" bracket of the state's population. Another major problem was failure of patients to seek periodic follow-up by their doctors. Neither of these problems are of such great magnitude for the well-to-do families or for those in the medically indigent group who usually receive medical follow-up care and drugs in special clinics.

Impressed by the success of the Connecticut Heart Association's program⁷ for making penicillin tablets available at a fraction of the normal cost, provided they are used only for rheumatic fever prevention, the Colorado Heart Association adopted a similar plan for use on a state-wide basis. This plan was a cooperative venture of the Heart Association, the Chas. Pfizer Drug Company and the Colorado Pharmacal Association. It had the prior approval of the State Medical Society and the State Health Department. It established a procedure whereby the patient could secure oral penicillin tablets, on prescription by his private physician, from his local pharmacy

*From the Colorado Heart Association and the Colorado State Health Department.

at a cost of only 5c per tablet. The following is a brief description of the mechanics of this plan.

Mechanics of plan

1. The Colorado Heart Association acts only as a clearing house for dispensing the special prescription blanks required and for keeping some important confidential records of the program's operation.

2. The patient's physician applies for a year's supply of special low-cost penicillin prescription blanks (in books of four blanks), using a questionnaire application which gives the pertinent information about the patient's history and cardiac findings (see Fig. A).

3. Using one of these special prescriptions, signed by his physician, the patient can obtain a three months' supply of low cost penicillin from his local druggist, though he may have to wait until it is specially ordered from one of the cooperating wholesale drug firms in Colorado.

4. After a three-month interval, it is necessary for the patient to consult his physician to obtain an additional special prescription. This encourages more adequate medical supervision of the patient.

5. At the end of a year, the physician must submit a re-application for his patient's needs, stating his opinion of the patient's course and condition during the previous year on the program (see Fig. B).

6. It is understood that neither the patient nor his physician will use the oral penicillin obtained under this plan for any purpose other than the prevention of streptococcal infections.

The basic principles of the plan should be emphasized: a) complete reliance on the family physician for all medical decisions, b) freedom of the patient to select his own physician and purchase medication on prescription through a druggist of his choice, and c) that no heart association funds are used to buy or subsidize the cost of selling penicillin.

Request for Special Penicillin Prescription Blanks for Prevention of Recurrences of Rheumatic Fever, Prophylaxis Program, Colorado Heart Association

Upon receipt of this request, we will send you by return mail prescription forms for a year's supply of penicillin, identified by your patient's name and our serial number. Thank you for supplying the data for our long range study of the effectiveness of prophylaxis of rheumatic fever.

Patient's Name _____
Parent's or Guardian's Name _____
Town of Residence _____
Address _____
Birth Date _____ Sex: M. F. Race: W. N. Other _____

(INFORMATION BELOW FOR STATISTICAL PURPOSES ONLY)

RHEUMATIC FEVER DATA

A. Date onset of first attack of rheumatic fever _____
B. Check the basis for diagnosis of rheumatic fever—any single attack according to Jones Criteria, Modified—September, 1958.

| | |
|----------------------------------|--|
| Major Diagnostic Criteria | Minor Diagnostic Criteria |
| _____ Carditis | _____ Fever |
| _____ Polyarthralgia | _____ Arthralgia (Do not check if Polyarthralgia is checked) |
| _____ Chorea | _____ Prolonged PR interval in the ECG |
| _____ Subcutaneous nodules | _____ Increased Sed. Rate, WBC, or presence of C-reactive protein |
| _____ Erythema marginatum | _____ Previous Streptococcal drug infection |
| | _____ Previous rheumatic fever or inactive rheumatic heart disease |

C. Number of Recurrences _____ Date of Last Recurrence _____
D. Family history of Rheumatic Heart Disease Yes _____ No _____ Suspected _____
E. Was chemoprophylaxis used for prevention of rheumatic before this request? Yes _____ No _____
If yes, type of drug _____ Duration of use (since what date) _____
Any history of sensitivity to penicillin? Yes _____ No _____

CURRENT DIAGNOSIS

A. Rheumatic Fever: Active _____ Inactive _____ Suspectively Active _____
B. DEFINITE Rheumatic H.D. _____ SUSPECTED Rheumatic H.D. _____
(M.I.) _____ No cardiac involvement _____
(M.S.) _____
(A.I.) _____
(A.S.) _____
(Other specify) _____
Comments (Any cardiac surgery, subacute bacterial endocarditis, etc.) _____

I plan to see patient every _____ months
I desire instruction by nursing service, when available _____ yes _____ no

Physician's Signature _____
Address _____

Figure A

REAPPLICATION FORM

RHEUMATIC FEVER PROPHYLAXIS PROGRAM
COLORADO HEART - COLORADO PHARMACEUTICAL ASSOCIATIONS

Case Number _____ Effective date of Reapplication _____

Patient's Name _____

1. Do you believe the patient has maintained reasonably good daily prophylaxis DURING THE PAST YEAR? Yes _____ No _____
Comments: _____

2. Has the patient had a streptococcal infection DURING THE PAST YEAR? Yes _____ No _____
(If yes, how was the diagnosis established? _____)

2. Have there been any recurrence of rheumatic fever DURING THE PAST YEAR? Yes _____ No _____
Comments: _____

4. Have there been any changes in the diagnosis of cardiac involvement DURING THE PAST YEAR? Yes _____ No _____
IF YES, please describe: _____

5. DURING THE PAST YEAR has patient had:

| | |
|----------------------------------|--------------------|
| Heart Surgery | Yes _____ No _____ |
| Subacute Bacterial Endocarditis? | Yes _____ No _____ |

Comments: _____

Physician's Signature _____
Address _____

PLEASE RETURN THIS FORM TO:

COLORADO HEART ASSOCIATION
1686 Logan Street
Denver 3, Colorado

Figure B

Utilization of program

On the basis of population statistics and the previous experience of the Connecticut Heart Association with a similar plan, it was estimated that there might be 300 to 400 physician-requests for booklets of the special prescription blanks. Instead, the popularity of this plan resulted in approximately 1,800 requests during the first year of operation. Re-applications, for a second year, are being received at about the same rate. The present report is planned to inform Colorado physicians regarding the medical aspects of the plan and of the population which is involved.

Tables 1 and 2 show the diagnosis obtained from the physician application forms. In Table 1 the column-heading "Total No. Rheumatic" represents the sum of all cases with a definite diagnosis of rheumatic heart disease at the time of application and those cases without rheumatic heart disease but having sufficient criteria under the Jones classification to establish a diagnosis of rheumatic fever at the present or at some previous time. More than half of these were in the pediatric age group, but a surprising number were over 25 years. The 99 cases having suspected rheumatic heart disease or other diagnosis are presented in more detail in Table 2. It is not surprising that a large

proportion (43 cases) would represent children under 15 years with a history and cardiac findings which make the average physician suspect rheumatic disease even though there is insufficient evidence to make the diagnosis. Probably this group will be reduced in size as re-examination, over a period of time, establishes the correct diagnosis. The Report and Recommendations of the Conference on Rheumatic Fever Secondary Prevention Programs⁸ recommends "That diagnostic services, through private consultation or qualified clinic, be available as part of the total community program and that practicing physicians be encouraged to make use of such services where there is any question as to the validity of the diagnosis of rheumatic fever or of rheumatic heart disease." The Colorado Heart Association will gladly cooperate with such a recommendation through its Rheumatic Fever Diagnostic Service at Colorado General Hospital. There is no charge to the patient or physician for this comprehensive approach to accurate diagnosis and the report of findings is sent directly (and only) to the referring physician.

Table 2 lists several other diagnoses submitted as justification for using continuous penicillin prophylaxis against streptococcal

TABLE 1
Reported diagnosis of low-cost penicillin cases

| | R.H.D. | R. F. Jones Criteria | Total No. "Rheumatic" | Suspected R.H.D. or Other Diagnosis | Incomplete Reporting |
|-------------------------------|--------|-------------------------|--------------------------|---|-------------------------|
| No. cases | 662 | 1,036 (552) | 1,214 | 99 | 142 |
| Sex | | | | | |
| M. | 289 | 488 (261) | 550 | 47 | 73 |
| F. | 373 | 548 (291) | 664 | 52 | 69 |
| Age at time of application | | | | | |
| 0-14 Yr. | 270 | 598 (379) | 649 | 77 | 91 |
| 15-24 | 139 | 202 (92) | 231 | 13 | 29 |
| 25+ | 239 | 203 (59) | 298 | 6 | 15 |
| Not stated | 14 | 33 (22) | 36 | 3 | 7 |

() = No Rheumatic Heart Disease at time of application.

TABLE 2
Cases with suspected rheumatic heart disease or other diagnosis

| | |
|---|-----|
| Suspected rheumatic heart disease..... | 57 |
| Chorea, alone | 12 |
| With "rheumatic disease" | 106 |
| Congenital heart disease, alone..... | 12 |
| With "rheumatic disease" | 6 |
| Nephritis, alone | 11 |
| With "rheumatic disease" | 3 |
| Rheumatoid arthritis | 1 |
| Streptococcus infection | 4 |
| Family history of "rheumatic disease" | 2 |
| Total | 99 |

infection. In this group are cases of "pure" chorea and of nephritis without concomitant "rheumatic disease." Whether one is justified in prescribing continuous penicillin for patients with congenital heart disease, or those with only a history of frequent streptococcal infections, remains problematical. In view of the present concern regarding development of penicillin resistant strains of staphylococci, and the ever present possibility of causing penicillin hypersensitivity, one might at least want to be sure that culture-confirmation of the frequent infections of beta hemolytic streptococci was obtained. Community and family studies by Dingle, et al.⁹, have shown that only 3 per cent of respiratory infections are due to the beta hemolytic streptococcus.

In view of Dr. May Wilson's studies indicating the hereditary susceptibility to rheumatic fever¹⁰, one might feel justified in using continuous prophylaxis against streptococcal infections in a child with strongly positive family history of "rheumatic disease," even though he has not shown any definite symptoms or signs of the disease. These are medical decisions beyond the scope of a voluntary public health agency such as the Colorado Heart Association.

In Table 3 the physician's comments about any previous prophylaxis have been grouped according to diagnosis of definite "rheumatic disease" (fever and/or heart disease) and suspected rheumatic heart disease. Even if one allows for the possibility that in some cases the diagnosis had been recently made, elimi-

TABLE 3
Report of previous prophylaxis

| | Cases | |
|--------------------------------------|-------------------------------|---|
| | Diagnosed "Rheumatic Disease" | Diagnosed Suspected Rheumatic Heart Disease |
| Number of cases..... | 1,214 | 57 |
| Number no previous prophylaxis | 476 | 28 |
| (15% new cases) | | |
| Previous prophylaxis..... | 661 | 26 |
| Penicillin | 492 | 17 |
| Sulfa | 149 | 2 |
| Other | 8 | 7 |
| Not stated | 75 | 2 |

nating about 15 per cent, there remains about one-third of the cases which have not had any type of continuous drug prophylaxis prior to the physician's application for low-cost penicillin. These serve to emphasize the large gap between the time of new discoveries in medicine and the general use of some of their benefits in private practice. It suggests that not only more but different plans are greatly needed for professional and citizen education. On the other hand, the old axiom that cooperation in a public health program is dependent upon the amount of service it offers, appears to be borne out by the unusually large number of physician applications. One almost questions whether the start of this program has not been too successful. The Colorado Heart Association committee which developed this plan had but two goals in mind: the removal of an economic differential between the oral medications (sulfadiazine and penicillin) recommended by the American Heart Association, and the encouragement of periodic medical supervision of individuals stigmatized with present or past "rheumatic disease."

Summary

This report concerns the first year's experience with a program to make oral penicillin available at reduced cost for rheumatic fever secondary prevention. The program, sponsored by the Colorado Heart Association, was developed from a similar plan operated

by the Connecticut Heart Association. It involves the cooperation of the Colorado Pharmacal Association and has the support of the State Medical Society and the State Health Department.

For the first 10 months of operation, 1,455 physician applications for the special, low-cost penicillin prescription blanks were received. For 1,214 of these patients, the physician indicated a definite diagnosis of "rheumatic disease." Of the remaining cases, 99

were either of doubtful diagnosis or had disease of some other type which the physician thought would be benefited by continuous penicillin prophylaxis. For 142 cases the questions in the application blanks were too incompletely answered to permit analysis. In about one-third of the cases with a definite diagnosis of "rheumatic disease," the physician reported that there had been no previous long-term prophylaxis for beta streptococcal infections. •

references on page 95

Improved outlook for patients with carcinoma of the pharynx*

Will P. Pirkey, M.D., Denver

One stage radical resection with tubular split thickness skin graft closure (when needed) has produced 60 per cent five-year cures.

THE PHARYNX CAN BE DIVIDED INTO THREE PARTS—the upper, or the nasopharynx; an intermediate or oropharynx; and the lower laryngopharynx or hypopharynx. This paper will concern itself exclusively with patients with carcinoma of the laryngopharynx or hypopharynx.

Real progress has been made in the surgical treatment of malignant diseases of the laryngopharynx during the past 50 years. Formerly the operative mortality ran as high as 60 per cent. This high surgical mortality led to the use of x-ray therapy for this type of tumor. However, results of treatment by x-ray alone have been unsatisfactory. The percentage of five-year survivals has varied

from a low 9 per cent, a few small reports of as high as 20 per cent; however, the average throughout the world of large x-ray centers shows approximately 11 per cent five-year survival.

With the advent of antibiotics, improved anesthesia, better knowledge of the lymph supply, and of nutrition and fluid balance, the percentage of cures treated surgically was increased. The problem of repair of the operative defect tended to limit the extensiveness of the surgery, however. The one stage radical resection of the larynx, pharynx and radical neck with immediate reconstruction has alleviated this problem.

One stage reconstruction

In 1953 the first report of the one stage operation with reconstruction of the pharynx and cervical esophagus with the free thick split skin graft was reported to have been successfully carried out on six patients. Since that time numerous reports have substantiated this first paper.

If the cancerous process occupies more than 70 per cent of the circumference of the pharyngeal food passage a total circumferential excision should be performed. If there

*Presented before the 88th Annual Session of the Colorado State Medical Society at Colorado Springs, September 24-27, 1958.

is evidence of metastasis to one or both sides of the neck, radical block dissection of the involved side of the neck should be carried out in continuity with the removal of the primary cancer. If the cancer is restricted to one side of the pharynx and larynx entirely, it is likewise felt that a therapeutic neck dissection on that side involved should be carried out. Reconstruction with a free thick split skin graft should be done if: first, the resection has included the entire circumference of the pharyngeal or esophageal apparatus; second, the resection has included more than 70 per cent of the circumference, thus precluding the immediate formation of a tubed passage with the remaining mucosa; and, third, pharyngeal and esophageal defects have been unsuccessfully handled with other reconstructive technics.

Complications

Complications should be minimal. They may be classified under the heading of infection, fistula, and stenosis. Infection is no commoner than when free skin grafting is attempted in any potentially infected area. Ample antibiotics and elimination of saliva from the wound usually controls the situation. In the absence of infection, fistula is rare. Small fistula may appear as a result of a stitch dehiscence. These usually close spontaneously in from two to three weeks. Stenosis is the most unpleasant complication, appearing gradually over weeks or months after an apparent successful operation. It was soon learned that the graft should be placed about a pharyngeal stint which should be left in place for five to six months minimum. Various materials have been used as stints, wire mesh was one of the earliest but has been discarded for flexible plastic tubes, first of nylon and then dacron and most recently Dr. Mason Morfit, of Denver, has devised a successful stint from a plastic named Teflon. Each operation is, of course, somewhat different from the previous, depending upon the exact location, size of the lesion and presence or absence of metastasis.

This type of operation is no different from any similar cancer operation, a careful dissection of all tumor with its node drainage areas is carried out. Then an oversized thick split skin graft is obtained from the abdomen

or the leg. This graft is approximately 1/15,000 to 1/20,000 of an inch in thickness. It is rolled into a tube approximately 2 cm. in diameter at its esophageal attachment and 4 cm. in diameter at its pharyngeal attachment. This is carefully sewed about the plastic stint that has been shaped to fit the operative defect. One of the most important steps of technic is careful end to end anastomosis of the free skin tube to the circumference of the pharynx and pharyngeal and esophageal mucosa. Anastomosis is carried out with interrupted double-O chromic catgut sutures. The realignment between the pharynx and the esophagus should accomplish an effective elimination of saliva from the neck wound. This elimination has the advantage of preventing infection of the neck wound caused by the constant flow of saliva over these areas which interferes with nourishment and support of the free graft. It also reduces the enzymic action on the raw surface of the graft and infection of the graft from contaminated saliva.

There is absolutely no handicap to the subsequent development of pharyngeal or esophageal speech. A patient with this type of operation can talk, whistle, and smoke again, can even play a musical instrument if he makes up his mind to.

Seven cases summarized

Seven cases are reported here that were operated on with the one stage radical resection of the cervical esophagus, larynx, pharynx and lateral neck, with immediate reconstruction done in 1952 and early '53. Of this seven, two had bilateral neck dissections done; one at the time of original surgery, the other eight months later when metastatic nodes developed in the opposite neck. Two patients are dead, five are alive and free of disease at the end of five years. The patient who had the single stage bilateral neck dissection died of a bleeding gastric ulcer two years after surgery. At post-mortem examination, no evidence of recurrence of his pharyngeal cancer or of his metastasis could be found. One patient, a woman, died of cerebral metastasis 11 months following her surgery. All patients, with the exception of the patient with bilateral one stage neck dissection, were sent home on the

eleventh postoperative day and he remained in the hospital for 21 days. Small fistulas developed in three cases, all of which closed in a minimum of three weeks following surgery. There were no infections, no other complications. All patients have returned to their work. One woman is a housewife, one man a bond salesman, one a bartender, one a barber, and one a carpenter. They have all developed excellent pharyngeal speech and for all practical purposes should live out their normal life span.

Summary

I feel that these patients, together with those reported by Conley, Orton, Morfit, and others, clearly show that surgical removal of these lesions has been perfected to a point where a reasonable morbidity and mortality can be expected. The patient's outlook has improved from almost certain rapid death from his disease to approximately 60 per cent chance for at least a five-year survival free of disease. •

Elbow fractures

E. V. Bigelow, M.D., Denver

Injuries to the "funny-bone" may be less than amusing to the patient and surgeon alike unless diagnostic and therapeutic skill are fully exercised. Prompt action is essential and non-operative technics have a definite place.

THE ABUNDANCE OF LITERATURE on injuries about the elbow, the frequency of such injuries appearing in the emergency rooms, and the grave countenance of attending physicians indicate the importance of the subject. Further, a true emergency exists in these injuries. Unless the practitioner arrives before the swelling does, his task and risk become steadily greater. The specter described by Volkmann and the knowledge of possible neurologic or joint malfunction usually provides sufficient spur to early treatment.

It is the purpose of this presentation to demonstrate typical elbow injuries. The contrasts and similarities of handling adult and children's fractures will be emphasized. The

treatment of complications evolving from elbow injuries will also be considered. As in other areas of fracture care, no single method of treatment is always successful for a given type of fracture. The skill of using some technics varies among surgeons. It will be more readily understood then that while a method may be considered to be indicated, others may produce equally good results.

Anatomy

A brief review of elbow anatomy will recall those components involved by injury. In the frontal view the distal end of the humerus is widened from side to side, the medial side being slightly longer than the lateral, the oblique surface is irregular; the capitellar and trochlear condyles are prominent. The lateral projection reveals the humerus to be flattened from before backward. The prominent condyles are equidistant and tilted 45 degrees forward from the long axis of the humerus. The coronoid and olecranon fossae separate the condyles on the anterior and posterior aspects. The eccentric lateral condyle thus accounts for the increasing elbow valgus as the forearm is extended. The trochlea of the humerus forms a hinge joint (ginglymus) with the semilunar notch of the

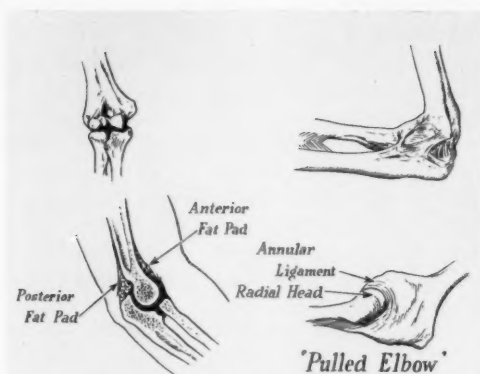


Fig. 1. Anterior, lateral, and cross section views of elbow. (Re-drawn from Gray's Anatomy.) "Pulled elbow" showing displacement of radial head distally. (Re-drawn from Calif. Med.: McVeagh.)

ulna. Adjacent coronoid and olecranon processes are received into the corresponding fossae of the humerus. The head of the radius forms a pivot joint with the proximal end of the ulna. Pronation and supination of the forearm cause the radial head to rotate on all aspects of the capitellum of the humerus. The essential ligaments to the joint are the medial and lateral collateral ligaments and the orbicular (annular) which holds the radial head in contact with the radial notch of the ulna. The capsule of the joint encloses the radial head, semilunar notch and the humeral condyles. It is particularly voluminous in its anterior and posterior regions to allow for great elbow flexibility. The biceps tendon divides the cubital space into medial and lateral compartments. With the exception of the radial nerve the neurovascular elements approach the elbow from the medial aspect of the upper arm. All elements except the ulnar nerve pass into the cubital area and then downward into the forearm. Clinically the humeral condyles and the olecranon give bony landmarks in the form of an equilateral triangle when the elbow is flexed to a right angle. A straight line is formed when the elbow is extended.

Strong emphasis should be placed on the careful examination of the recently injured elbow. The patient's pain and apprehension is appreciated and gentle consideration is necessary, but a sound opinion can be based



Fig. 2 Shadow posterior to distal end of humerus represents displaced posterior fat pad.

only on a thorough objective examination. Swelling and contour changes of the elbow are readily detected, as is the patient's reluctance to move the joint. Radial pulsation, skin and nail color changes give rapid estimates of peripheral circulation. Radial, median, and ulnar nerve functions are easily tested by wrist dorsiflexion, thumb to fifth finger motion, and finger adduction-abduction. Notations of all findings are valuable record entries. X-rays of the injured and normal elbow should be made routinely. The time of appearance and ossification of the four distal humeral epiphyses and the proximal epiphysis of the radius and ulna can be memorized. However, comparison of identical views of the opposite elbow give a more reliable and accurate evaluation. It must be remembered in studying the x-rays of children that a significant but unseen amount of the humerus, radius and ulna at the elbow joint is cartilaginous. A displaced epiphysis may, therefore, represent a much larger segment.

Distal humeral fractures

Distal humeral fractures in adults are classified with respect to whether or not and to what extent the articular surface is involved. Such involvement occurs in about 75 per cent of cases. Experts disagree on the treatment resulting in least disability. Generally, these injuries can be treated by open or closed reduction or by traction. The objects of open reduction are: (1) To establish the essential relationships between the condyles and the condyle and ulna. (2) To keep the olecranon fossa of sufficient size to admit



Fig. 3. Child's supracondylar fracture.

the olecranon. (3) To re-establish the forward tilt to the condyles. (4) To secure the condyles to the shaft. (5) To secure external fixation. It is conceded by most that extensive surgery is undesirable and may result in less motion and possibly in a myositis ossificans. A compromise has been advocated whereby the articular fragments are secured internally. The thus converted supracondylar fracture is then treated by closed methods. More severely comminuted fractures, particularly in the elderly, lend themselves to closed reduction. Skeletal, skin or hanging cast traction is also occasionally of value. Residual disability may be the result of:

- (1) Limited motion which may occur with a mechanical block. An obliteration of the olecranon fossa or a periarticular fibrosis.
- (2) A real deformity which is due to malalignment or a persisting flexion contracture.
- (3) Weakness due to impaired joint mechanics or muscle atrophy.

Sixty per cent of children's elbow fractures are in the supracondylar region. Decreasing frequency is noted as the fractures occur more distally. Fortunately many supracondylar injuries are encountered with minimal displacement. Some escape detection. Norell has made an interesting observation in the diagnosis of minimal intra-articular fractures of the elbow. He drew attention to the ventral and dorsal fat pads near the coronoid and olecranon fossae. He pointed out that the dorsal fat pad is never seen by x-ray except when it is displaced upward. A hemarthrosis will cause such displacement. Norell feels that when the fat pad is visualized, continued search by x-ray will often reveal an intra-articular fracture. Among displaced supracondylar fractures

flexion or extension types may be encountered. The latter are usually seen but the former are seldom seen in children. Above the age of 20, dislocation often results from this injury mechanism rather than fracture. As in adults, the aim of treatment is anatomic reduction. Results do not justify open procedures. Most surgeons adhere to closed technics. It has been said that the first manipulation is the one most likely to succeed. Some feel that further attempts constitute manhandling of the injury. Watson-Jones, however, advises repeated attempts if necessary.

Reduction technic

Steps taken for reduction are as follow:

- (1) Extend the elbow and correct lateral or medial displacement by molding and by abduction or adduction of the forearm.
- (2) Apply traction and hyperextend joint slightly to oppose the dorsal cortices.
- (3) Flex the elbow.
- (4) Apply a posterior plaster splint.

The proper degree of flexion is the least amount which holds the fragments without jeopardizing the circulation. A variation of the above method is used by Shipman who places his thigh over the arm for counter traction while traction is applied upward on the vertical forearm. In some instances manipulation fails. Loss of a radial pulse with the elbow flexed may necessitate extension of the elbow. Displacement of the fragments may then result. Marked swelling may preclude all consideration of fracture care and concern may be great for circulatory distress. Should any of these situations occur, mechanical traction and elevation is the treatment of choice. The surgeon may elect to continue traction until the swelling subsides and then manipulate the fragments as in an acute situation. On the other hand, it may be decided to continue traction for several weeks depending on the traction alone for reduction.

Dunlop's traction

Dunlop's traction consists of:

- (1) Applying moleskin tape to the dorsal and ventral aspects of the forearm.
- (2) Place the patient's body near the edge of the bed on the injured side.

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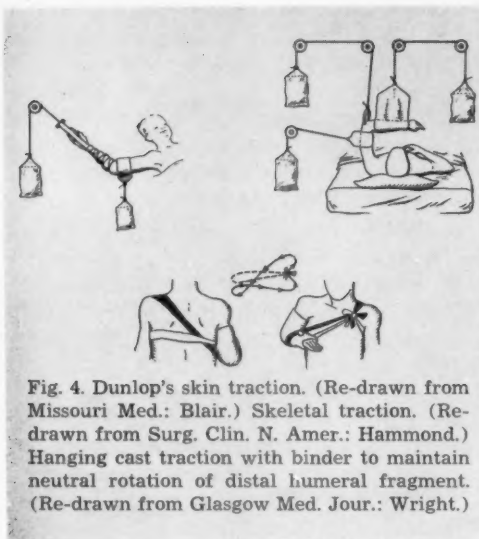


Fig. 4. Dunlop's skin traction. (Re-drawn from Missouri Med.: Blair.) Skeletal traction. (Re-drawn from Surg. Clin. N. Amer.: Hammond.) Hanging cast traction with binder to maintain neutral rotation of distal humeral fragment. (Re-drawn from Glasgow Med. Jour.: Wright.)

- (3) Wrap the forearm and tape with elastic bandage.
- (4) Abduct the shoulder 90 degrees and extend the elbow to 135 degrees and add 3 plus pounds traction.
- (5) Place a saddle over the arm for counter traction downward.
- (6) Raise the same side of the bed six inches.
- (7) Cast after two to three weeks.

A similar method with additional advantages is that of skeletal traction with the wire through the proximal ulna. These advantages include easy inspection of the arm and no need for circular dressings. The process of bone molding must be considered as a factor in treatment. This should not be thought of as a process of straightening the bone since little occurs in the elbow region. Further, rotational deformities are not affected by molding. Younger children show the more beneficial effects of the molding process.

Circulation first

A severe circulatory disturbance relegates fracture treatment to a place of secondary importance. The majority of vascular accidents have resulted from supracondylar fractures and usually occur in children. The common denominator of all Volkmann's ischemias is displacement of the bone fragments.

The infrequency of neurovascular complications is due to the medial placement of these structures as well as the buffer offered by the brachialis muscle. The upper fragment passes to the medial side of the biceps and only then encounters the neurovascular structures. Early manual or traction reduction usually relieves abnormal signs. However, a persistently cold, white, motionless hand, an absent radial pulse, and particularly an absent nail capillary return and increasing pain is an adequate invitation for exploration. For purposes of memorizing danger signs they are listed as the four "P's": pain, pallor, pulselessness and paralysis. Nerve dysfunction alone is best treated expectantly.

In children, humeral condylar fragments resulting from injuries are usually much larger than shown by x-ray. Lateral epicondylar fractures are infrequent. Subluxation of the joint is thought to be a part of the injury mechanism. Re-dislocating the joint laterally and posteriorly reduces the fragment. The dislocation may then be reduced and the arm fixed in plaster. If closed reduction fails, the fracture should be opened and fixed internally.

Other humeral fractures

Fractures of the medial epicondyle are more frequent. This epicondyle is an apophysis and does not contribute or interfere with growth. When avulsion occurs without dislocation of the joint, the displacement is seldom marked. Closed reduction is sufficient. When dislocation of the elbow occurs with the avulsion, however, the fragment may be incarcerated within the joint. The sign of inclusion in the adult is limited joint motion. Flexion is blocked; extension causes progressive valgus deformity and re-dislocation occurs. Open reduction is required.

Fractures of the lateral condyle are often seen. There are two types. (1) Those in which the fracture line passes lateral to the trochlear groove and in which the ulna does not dislocate. (2) Those in which the fracture line lies medial to the trochlear groove and the ulna is dislocated laterally. Early open reduction is required in the second type and may be necessary in the first if closed reduction is unsuccessful. The closed maneuver should consist of flexing the elbow slightly,



Fig. 5. Medial condylar fracture.

adducting the forearm, manipulating the fragment with the thumb and maintaining the reduction by flexion in plaster. Medial condyle fractures are the mirror image of capitellum injuries but occur infrequently. In both it is associated with tearing of the overlying aponeurosis. Accurate surgical reduction of the trochlea is necessary.

Radial head injury

Radial head injuries are the most frequent of adult elbow injuries. Marginal fractures without a palpable click may be treated with a sling or plaster for ten days followed by graduated active exercises. More severe injuries warrant early excision of the radial head. Fractures of the radial head in children are less frequent. The mechanism of injury implies a cubitus valgus strain. Possible associated injuries are avulsion of the medial epicondyle, rupture of the medial collateral ligament and fracture of the proximal ulna. Spontaneous correction of the radial head occurs in children if the tilting is 20 degrees or less.

Closed reduction with the following steps should be attempted before opening a child's radial head injury:

- (1) Extend the elbow.
- (2) Adduct the forearm.
- (3) Rotate the forearm.
- (4) Make digital pressure over the radial head.
- (5) Use plaster for three or four weeks with the elbow at a right angle and forearm in mid pronation.

Open reduction is indicated when the head is markedly displaced and closed reduction fails. The epiphysis is never discarded in children.

Proximal ulna fracture

Fractures of the proximal ulna are the second most frequent in adult elbow injuries. Displacement requires open reduction. Occasionally the proximal fragments may be excised and the triceps secured to the distal fragment. Coronoid fractures often accompany ulnar dislocations, closed reduction is adequate. In children closed reduction is usually sufficient for proximal ulnar injuries.

Combined radio-ulnar injuries, wherein the head of the radius is dislocated and the proximal ulna fractured, are referred to as Monteggia fractures. Reference is made to anterior, posterior and lateral varieties depending on the direction of the radial dislocation. The orbicular (annular) ligament is ruptured in all instances. Its repair is considered ill-advised. In children maintained reduction of the radial head usually insures a good result. Such a reduction is accomplished by extending the elbow, supinating the forearm and making digital pressure over the radial head. A closed reduction in adults is unlikely and reductive without destructive procedures are satisfactory only in early stages. The ulna requires early open fixation. If the adult radial head is fractured, it should be excised early. The posterior variety should be immobilized in extension after reduction. The consequences of inadequate early treatment of Monteggia fractures include ulnar nonunion, radio-humeral ankylosis, radio-ulnar cross union and permanent or recurrent radial dislocation.

Elbow dislocations are seen more frequently in adults and older children. Posterior displacement of the radius and ulna is the most usual; however, medial and lateral dislocation may occur. Complications are frequent. They include fracture and incarceration of the medial epicondyle, fracture of the coronoid process, fracture of the radial head and rupture of a collateral ligament. Reduction is accomplished much in the same manner as for children's supracondylar fractures; that is, by traction with the elbow in extension and gradual flexion of the joint. Recurrence of dislocation is common. While anesthesia is used in the reduction of most dislocations, it may be omitted. Gentle, gradual traction which is sustained will bring about a reduction.

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The "pulled elbow"

Reference is often made to the "pulled elbow" of very young children. This is a type of radial head dislocation first described by du Vernay in 1751. It is also referred to as Malgaigne's luxation, dislocation of the radius by elongation and the painful pronation of children. Those affected are usually under three years of age. Extreme pain and sometimes an audible snap follows the sudden lifting of the child by the hand. The arm appears flail but with the elbow slightly flexed and the forearm in pronation. The shoulder, wrist or forearm is often thought to be the site of pain. The pain is produced by the pulling of the radial head below the annular ligament. As in other pronation injuries, rotating the forearm with digital pressure behind the radial head. Anesthesia is not usually required.

The period of treatment following the

removal of casts or splints is often distressing to both the doctor and the patient. In a great many instances the recovery of function is all too slow. There is an almost irresistible desire to compel the elbow to move —by whatever force is available. It cannot be emphasized too strongly that the injured arm alone should be the only moving force. No massage, manipulation or passive motion should be permitted. Instructions and encouragement are the sole weapons of the surgeon at this time.

Conclusions

In conclusion it is again urged that elbow injuries be examined and treated promptly. Children's injuries are treated by closed methods with but a few exceptions. While tions in adult injuries, the limiting factor of there are more indications for open reduced motion following extensive surgery should be remembered. *

references on page 95



Translumbal aortography*

Robert V. Elliott, M.D., Denver

An analysis of complications and use of the procedure in internal medicine.

IN RECENT YEARS, and especially within the past year, there have been increasing reports on the hazards and complications of aortography. The procedure has even gained nationwide publicity from the medico-legal point of view because of a spectacular lawsuit arising from a translumbal aortogram with subsequent paraplegia¹.

Case reports of bowel infarction, renal infarction, oliguria, dissecting aneurysms,

paraplegia^{2,3,4,5,6,7} and the like have tended to put this into the category of a hazardous and unnecessary procedure by many individuals and several institutions. This is unfortunate because of the value of this procedure when properly performed. The reports of continued use and the benefits from aortography are published in greater numbers than those condemning the procedure, but, as is the case with most things in print, the failures and untoward reactions assume a spectacular role and the benefits are put in the role of matter of fact information.

Actually, serious complications have been few as reported in the literature. With one of the first described technics there have been over 2,000 cases done by one group of individuals without any serious complications and no deaths. Within the past eight years

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I would estimate that at least 500 to 800 such examinations have been done in Colorado and there have been no serious complications reported.

Preferred procedure

Aortography done by the translumbar route is basically a simple procedure. As a matter of fact, it is so simple that it has been done without regard to its potential hazards and has been done indiscriminately. The technic as described by Smith, Rush and Evans⁸ is still preferred in spite of many modifications that have been described. In reviewing the reports of serious complications and deaths following translumbar aortography, it is not uncommon to find this technic was not used. In an attempt to get better visualization of the terminal aorta, the popular technic has been to attempt injection below the renal arteries^{4,9}. This reduces the dilution of the contrast medium by avoiding the visceral circulation but exposes the patient to the risk of injection of the wrong vessel plus the usually ignored risk of high concentrations of contrast medium in the nutrient vessels of the nervous system. Many times, in the attempt to get a good x-ray, large amounts of dye have been used which present the hazard of reaction to the contrast media itself. Sensitivity to contrast media has been discussed at great length and there has been only one definite anaphylactoid death¹⁰ attributable to any contrast media with the exception of sodium iodide solutions which are no longer in use.

The safest place to insert the needle is no lower than the level of the twelfth thoracic vertebrae, which gives one a wide margin of safety in avoiding the celiac axis, the superior mesenteric artery and the renal arteries. Occasionally one is unable to enter the aorta with ease at this level and the tendency is to attempt another puncture at a lower level which is usually successful but also dangerous in that vessels other than the aorta are entered. By injecting above the celiac axis one is able to take advantage of the dilution of the contrast material throughout the viscera which reduces the risk of vasospasm or local idiosyncrasy to the dye. If the x-ray and injection technic are coordinated properly, good visualization of the entire vascula-

ture that can be seen on a 17-inch film can be accomplished with as little as 10 cc. of any of the standard contrast media. As a safety factor for errors in timing, it is common to use up to 20 cc., but it is seldom necessary to use more. I make it a hard and fast rule to abandon the procedure if I am unable to enter the aorta with three "passes," and on repeating the procedure the following day in only one instance have I been unable to enter the aorta. It is a grave mistake to probe blindly with a seven-inch, 18-gauge needle in hopes of striking the aorta. Many fears have been expressed about the bleeding that would follow puncture of the aorta, especially puncturing an arteriosclerotic aorta that is liable not to seal off as well as an aorta with normal elasticity. However, this is not a serious problem and for practical purposes can be ignored if the procedure is carried out with a single needle puncture instead of multiple puncture sites.

Selection of cases

The selection of cases obviously enters into the morbidity and mortality statistics and poor risk cases have accounted for many of the reported complications in aortography and it is essential that intelligent screening of patients be done. It is obviously unwise unless it is felt information can be gained which will help in the management of the person's illness.

It is reasonable to state that translumbar aortography is a relatively safe procedure and carries no undue risk when proper technics are used. Morbidity and mortality rates will increase, however, with injudicious use and with failure to observe the standards and technics that have been free from serious complications.

Aortography has been used as an aid in diagnosing a variety of diseases within the abdomen, but its main value is in diagnosing abnormalities in the major blood vessels within the abdomen. The question arises: Where does this surgical procedure fit into internal medicine since most of the problems are of a surgical nature? The answer to this is that the surgeon usually sees these cases only when the problem is far advanced or upon the referral of another doctor. It then behooves the internist to be aware of the

clinical signs and symptoms of diseases of the abdominal aorta and its branches and also to be aware of diagnostic tests to aid in the definitive diagnosis.

New outlook on aneurysms

Only within recent years has the true incidence of aneurysm and occlusion of the aorta been fully appreciated and this has been stimulated by the ability to repair many of these defects and the ability to recognize them before they have progressed to a point where it is impossible to render definitive help to the patient. Obliterative disease of the abdominal aorta has been recognized for many, many years but only in recent years have we realized fully that the symptoms are in no way as dramatic as would be expected. It is possible to have a complete occlusion of the terminal aorta and yet have few symptoms, often less than one might have with peripheral vascular disease. Most obliterative disease is related to atherosclerosis but this can be seen as early as 30 years of age. Significant symptomatology is often shrugged off by the clinician as "a little arthritis" of the hip, old age, muscle cramps and the like, and many times palpation of the distal pulsations of the feet are sought for diligently, but palpation of the femoral vessels is completely overlooked. Likewise, much interest has been generated in the field of aortic aneurysms since many are amenable to surgical repair.

The fact that certain heretofore vague abdominal pains can be related to the presence of an aneurysm is now recognized and it is important to be aware of the presence of expansile pulsations when examining the abdomen. Such findings have been classical teachings in physical diagnosis, but it is amazing how the former futility of these conditions has lent itself to slipshod diagnoses, and once again the almost lost art of palpation of the abdomen has been revived. The distinction between a pulsating mass and a mass with transmitted pulsations may be a difficult task but it is in this area that aortography is indispensable. Aneurysmal dilatations of other major vessels in the abdomen can be palpated but it is impossible as a rule to determine which vessel the aneurysm involves.

Diagnostic surgery not required

The clinician must be aware of the many clinical pictures associated with these conditions as well as the varied clinical signs that he may encounter during a routine examination. Upon suspicion of any of these conditions aortography becomes many times indispensable. It is often said that because of the so-called dangers of aortography that this procedure is unnecessary when obliterative disease or aneurysm is diagnosed clinically because a surgical procedure is necessary for repair and definitive diagnosis can be made only at surgery. This view is not shared by a number of medical centers^{11, 12, 13, 14, 16} in spite of good results in the hands of some individuals. It is generally conceded that aortography is helpful and often necessary in the planning of operative procedures. It is especially helpful in detecting the point of occlusion and oftentimes delineating the length of occlusion, since many times the outflow tract can be observed by the filling of the collateral circulation around the occlusion. Collateral circulation is visualized which may be an important feature to the surgeon in his approach to the problem. An important aspect in occlusive disease is to know the superior limits of the occlusion since involvement of the renal arteries is not uncommon and may even be so extensive as to preclude the routine surgical approach. Bilateral visualization of the kidney by intravenous pyelography is not adequate evidence that there is no involvement of the renal arteries. A thrombus may extend to a level just below the renal arteries preventing clamping of the aorta and it is obvious that this is not a satisfactory procedure without satisfactory special technics such as hypothermia, by-pass circulation, and the like.

Positive and negative diagnoses

In a recent series of 50 translumbar aortograms done at Emory University⁶ they found that in 27 they were able to make positive diagnoses by aortography and only eight of these were confirmations of clinical diagnosis. Of the remaining 23 cases, they felt that the procedure was significant in that they gained information invaluable to the management of the patient by exclusion of

any disease process in the terminal aorta or its branches. These are extremely significant figures since aortography actually gave accurate and useful information for definitive management of each case.

It is beyond the scope of this paper to cover all the ramifications of aneurysm of the aorta or its branches since the clinical picture in many cases of aneurysm of the abdominal aorta actually precludes the necessity for aortography. However, it is obvious that much information can be obtained in selected cases, especially in the realm of the degree of thrombus in the aneurysm, the type and extent of the aneurysm, and the location of the aneurysm. Many times aortography demonstrates multiple aneurysms whereas clinically attention was given only to the possibility that only one aneurysm was present. Aortography should not be considered when an aneurysm is suspected in the upper abdominal aorta because the aneurysm alters the wall of the aorta and may bleed⁷ seriously if punctured with a needle. This is an uncommon finding, however, since most aneurysms of the abdominal aorta occur below the renal arteries.

Hypertension and renal disease

There has been great interest once again in the role of the kidney in hypertension. The so-called Goldblatt phenomenon is being recognized more and more and newer methods of screening hypertensive patients have allowed us to point the finger of suspicion to unilateral kidney disease as the etiologic agent in many cases. It is to be emphasized that aortography is not a procedure to be used in screening hypertensive patients, but it is becoming recognized more and more that the visualization of a kidney as seen by intravenous pyelography is not necessarily indicative of normal blood flow through that kidney. Aortography may be indicated in a number of hypertensive patients regardless of the age group. It is felt that the pulsatile flow through the kidney is of more importance than the minute volume, and mechanisms that could alter this can often be demonstrated by aortography as abnormalities of the renal arteries. Arteriosclerosis of the renal arteries is not necessary to cause narrowing of the lumen or alteration of the

blood flow since we are recognizing that intimal fibrosis or aneurysms of the renal arteries may often be associated with hypertension that is reversible following removal of the kidney distal to these abnormalities. These structural defects in the renal arteries often defy demonstration by any other means. Some authors⁵ have raised objection to puncturing the aorta in a hypertensive patient, stating that this may cause unceasing blood flow at the puncture site. This is not a generally accepted feeling and many observers feel that this is no contraindication to translumbar aortography. If it is felt undesirable to do translumbar aortography, it is always possible to obtain an aortogram by retrograde catheter, the so-called percutaneous method.

Occasionally other conditions arise in which aortography may be useful. Often-times calcifications detected on x-ray need evaluation by aortography and may point to an aneurysm or occlusion of one of the major branches of the aorta which can be easily demonstrated. There are other less common indications that may necessitate aortography in patients seen in internal medicine but these do not necessitate elaboration at this time.

Summary

If the internist is aware of the availability of this valuable diagnostic procedure, it is certain that he will be able to detect many of these diseases in their early forms and thereby institute proper corrective measures before the process has done irreversible damage or is beyond repair. *

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references continued on page 153

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Trichlorethylene analgesia in minor surgery*

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*A plea for more extensive use
of a safe (if properly used)
and simple inhalation anesthetic.*

TRICHLORETHYLENE IS A VALUABLE ANALGESIC agent in many minor surgical procedures. Used with Cyprane or Duke University Inhalers, it produces potent analgesia, with or without loss of consciousness. It is safe even when administered by an untrained assistant or by the patient himself. It affords a rapid recovery with few side effects or complications. There is a minimum of psychic trauma, even in small children.

History

The drug was discovered in 1864 by a German chemist and was later used as a solvent and dry-cleaner in industry. During its widespread use by German factory workers in World War I, trichlorethylene poisoning was noted and its symptoms first described by Plessner¹; vertigo, nausea and vomiting, papilledema and analgesia of the area supplied by the trigeminal nerve. Another German, Oppenheim¹, suggested its use in the treatment of trigeminal neuralgia and many papers were published in that country during the 1920's reporting on its effectiveness. The narcotic action was noted by various authors but it remained for an American, Jackson,² in 1934, to describe the use of trichlorethylene for general analgesia and anesthesia. The Council on Pharmacy and Chemistry of the American Medical Association

issued a preliminary report in 1936³ in which it refused to accept trichlorethylene as a general anesthetic agent, dooming its further use in the United States.

Interest in the drug was revived in England during World War II. An anesthetic was required that could be used on the battlefield, one that could be easily transported, administered with simple apparatus, non-flammable, potent, available in ample supply, and safe in the hands of untrained personnel. In 1942, Hewer⁴ reported the successful use of trichlorethylene in minor and major surgery in England, and by 1948 it had been administered in more than a million cases. Although it may be used in major surgery when supplemented with nitrous oxide-oxygen mixtures plus relaxants, experience has shown that it is safest and most valuable only when given as an analgesic for minor surgery.

Physical properties

Trichlorethylene has the chemical formula C_2HCl_3 and is a heavy volatile liquid with a boiling point of 86 to 88° C. It is produced in quantity by the controlled chlorination of acetylene. Its vapor has a fairly strong sweet smell resembling chloroform and is not unpleasant to most individuals. It is supplied as "Trilene" by Ayerst Laboratories and as "Trimar" by Ohio Chemical and Surgical Equipment Company. These are highly purified trichlorethylenes to which a stabilizing agent, 0.01 per cent thymol, has been added to prevent decomposition into phosgene and hydrochloric acid, and a dye, waxoline blue, added to distinguish it from chloroform. With its high boiling point it is the least volatile of all the inhalation anesthetics;

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administration by the open drop method is difficult but possible. Trichlorethylene is decomposed by heat or strong light with the formation of phosgene and hydrochloric acid and, in the presence of an alkali and heat, dichloroacetylene is produced. For this reason, it should not ordinarily be used in closed circuit anesthesia with soda lime. The vapor of trichlorethylene in air will not ignite under normal temperature conditions and the vapor in oxygen only in concentrations above 10 per cent, far in excess of the usual analgesic concentrations of under 1.5 per cent.

Pharmacology

Trichlorethylene is related to both ethylene and chloroform chemically and shares some of the features of both. The margin of safety (the difference between the concentration that will cause analgesia and that which will cause death) of trichlorethylene is 3 per cent, far more than chloroform's 0.65 per cent but far less than ether's 8 per cent. It stimulates the respiratory center, does not affect the vasomotor center, and depresses the vomiting center. Because of its similarity to chloroform, it was feared that trichlorethylene would adversely affect the liver. However, the results of animal experiments, laboratory tests, and clinical practice have shown that its toxic effects on the liver are negligible.

The effect of trichlorethylene upon the cardiovascular system is an important consideration in its use. All of the present commonly used inhalation anesthetics can produce cardiac arrhythmias which may be divided into two groups. Group I consists of sinus bradycardia, nodal rhythm, and partial heart block, all probably due to increased vagal tone. These are harmless. Group II consists of multifocal ventricular extrasystoles and ventricular tachycardia (both precursors of ventricular fibrillation in chloroform anesthesia). These are considered dangerous.

With trichlorethylene, group II arrhythmias occur in lower first and second plane anesthesia. Therefore, we recommend trichlorethylene for analgesia only in minor surgery. In anesthetic concentration, the drug frequently produces tachypnea which

is, as a rule, temporary, and usually relieved by reducing the strength of the vapor. It is believed due to increased vagal activity stimulating the Hering Breuer reflex. Not only is the rate greatly increased but the depth of inspiration decreased, leading to hypoxia and hypercapnia. Trichlorethylene differs from the usual inhalation anesthetic agents in that a portion of the drug is oxidized and excreted in the urine as harmless trichloroacetic acid.

Possible side effects

Norris and Stuart⁵ reported seven cases of death from primary cardiac failure in which trichlorethylene was administered with nitrous oxide and oxygen in all but one. They recommended the employment of alternative agents whenever possible. However, the British Committee upon Deaths Associated with Anesthesia has reported that primary cardiac failure accounts for only 1.5 per cent of the cases where the anesthetic is considered to be responsible for the fatality⁶. Certainly with the widespread use of trichlorethylene in Great Britain, it must be considered a safe agent.

Trigeminal nerve palsy was the most striking sign of Plessner's original description of trichlorethylene poisoning in 1915. Since then, other cranial nerve palsies have been seen, involving at times all but the first, second, ninth and eleventh nerves¹. If there is nerve recovery, it begins in five or ten days and may be almost complete in two weeks. Otherwise the prognosis is bad—some patients may show no improvement after six months. Ostlere¹ stated that of 22 cases of nerve palsy seen in Britain in 1943, 13 or more had one feature in common: each patient had been anesthetized with closed circuit technic. Trichlorethylene is decomposed by soda lime in the presence of heat to form hydrochloric acid (absorbed by the sodium hydroxide) and dichloroacetylene, the cause of the cranial nerve palsies.

Two practical points brought out by Ostlere and also by Fabian and Stephen⁷: first, short exposure to the decomposition products of trichlorethylene is sufficient to produce trigeminal paralysis—five minutes in one patient; and second, it is not necessary for trichlorethylene to be the anesthetic given. The

drug may be used first in the closed circuit and later patients anesthetized with other agents can be affected by the decomposition products remaining in the anesthetic machine. Patients who have been receiving trichlorethylene analgesia with the inhaler can safely be anesthetized with other agents in closed circuit anesthesia provided they breathe room air for 15 minutes in between. At the end of such an anesthetic, the soda lime should be discarded to protect later patients.

Technic of administration

Trichlorethylene may be self-administered by the adult and cooperative child or may be administered by the anesthetist, the physician, or his assistants. In either method, a few minutes spent in instructing the patient on the apparatus, the procedure, and what to expect from the analgesia will relieve anxiety, improve cooperation, and insure the best result. We use the Duke University Inhaler developed by Stephen⁸. This is a small nonbreathing inhaler in which air is drawn through a metal-enclosed wick saturated with 15 cubic centimeters of trichlorethylene, the vapor passing through a face mask to the patient. The concentration of the drug's vapor can be adjusted between 0.1 and 1.3 volumes per cent.

For self-administration the scale is usually locked at reading of 3 to 6 which permit concentrations of about 0.5 to 1 volumes per cent. The patient is instructed to take a few shallow inhalations to accustom himself to the odor of trichlorethylene, then to breathe more deeply. Should consciousness be lost, the inhaler falls from the patient's face for a few moments. A wrist strap is provided to prevent the apparatus from falling to the floor. As soon as consciousness returns the patient will again use the inhaler. When administering trichlorethylene to a patient, it is better to start at the minimum scale setting and gradually raise the concentration to the amount indicated clinically. The inhaler should be removed momentarily if the patient loses consciousness. With this safety factor, the patient will receive only analgesic concentrations of the drug. Tachypnea and cardiac irregularities are indications to temporarily discontinue administration; if they

should return with lesser concentrations, trichlorethylene should be stopped and analgesia continued with another agent such as nitrous oxide and oxygen.

Indications

The following is a list of some of the minor surgical procedures that have been performed under trichlorethylene analgesia with the Duke University Inhaler—cystoscopy and similar endoscopic examinations and procedures, change of painful dressings, myringotomy, suture of small lacerations, closed reductions of minor fractures and dislocations, replacement of orbital prostheses, venapuncture in children, removal of imbedded sutures, incision and drainage of abscesses, superficial biopsies, as a supplement to local and spinal anesthesia provided epinephrine has not been used but safe with Vasoxyl and Neosynephrine, and similar procedures. It is especially valuable in office practice and in emergencies outside the office.

Trichlorethylene analgesia is usually not adequate for extensive early burn dressings and debridements and provides no relaxation for closed reductions of long bone fractures. Overdosage may result in prolonged periods of unconsciousness and it may be a dangerous agent in the presence of a cardiac arrhythmia or other signs of heart disease.

Conclusions

Trichlorethylene is an analgesic agent that has proven itself of great value in an office, emergency and home practice. Neither it nor its inhaler are expensive, it is portable, analgesia is rapid, smooth and profound, it is nonflammable, premedication may be used but is not necessary, there is no change in blood pressure, recovery is rapid, and it may be administered by the patient or any assistant. •

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Unilateral renal disease in hypertension*

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Three cases are presented to illustrate the occasional dramatic benefits derived from surgery.

Physiology, pathology, and diagnosis are reviewed.

OF COMMON INTEREST to the internist and urologist is the compelling problem of hypertension in its relation to unilateral renal disease. Clinical observation supports the contention that a small and select group of hypertensives will dramatically revert to normotension following the surgical removal of the unilaterally diseased kidney. The mechanism involved in the production of hypertension by a diseased kidney is not too clearly understood. However, the concerted effort of a number of investigators has contributed generously to the clarification of this complex phenomenon.

Physiology and pathology

The physiology and pathology of renal hypertension has comprehensively been covered by J. P. Simonds. R. W. Scott makes these observations: "Arterial and arteriolar sclerosis of the kidney vessels excite a renal humoral mechanism which produces an increased muscular tone in the peripheral arterioles causing elevation of systemic blood pressure." They further state that diseased kidneys exercise a direct control over the tonicity of the peripheral arterioles which,

in turn, regulates the systemic blood pressure. W. E. Kittridge and H. G. Brown stress the Goldblatt phenomenon as the important factor in the production of hypertension. They further observe that hypertension is humoral in origin and that renal ischemia is prominently noted as a factor in renal hypertension. Other investigators concurred in the observation that the physio-chemical changes productive of renal hypertension are invariably present and may be summarized in the following formula: Renin (a protein enzyme and endocrine product of the kidney) plus hypertensinogen (a protein elaborated by liver) combine to produce angiotonin (hypertensin), a pressor substance which invokes vasospasm. It is also observed that normal kidney tissue is capable of producing an antipressor substance known as inhibin which is intimately concerned with neutralization of the chemical by-products of renin and hypertensinogen. Imbalance between these two factors, renin and inhibin, leads to persistent hypertension. To initiate and to sustain this pathologic process, in a physiologically normal kidney, the Goldblatt phenomenon (i.e., chronic progressively increasing ischemia of the organ) must be present. However, the medullary portion of the kidney must remain physiologically competent to transport the by-products of renal ischemia into the systemic circulation. This, in brief, summarizes the role that the kidney plays in the pathologic entity of renal hypertension.

There are, however, clinicians and investigators who do not implicitly subscribe to the humoral concept of renal hypertension. Among these may be mentioned H. W. Smith

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and associates, who maintain that the theory of primary renal origin of hypertension is unproved. "The kidney is the victim and not the culprit." S. J. Okutria and V. I. Marshall are skeptical about the direct association of hypertension with unilateral renal disease. They do, however, concede that a small number of hypertensives may be helped by renal surgery.

Incidence

Accumulated clinical data over a period of years points to the conclusion that of the large number of hypertensives, few can be associated with renal disease and still fewer with unilateral renal pathology. Edgar Burns states that, "of the adult population, 25 per cent have hypertension and of 300 nephrectomized cases, only 20 per cent can be regarded as cured."

J. E. Thompson and R. N. Smithwick report that, out of 2,600 hypertensives, only two cases were associated with unilateral renal disease which were benefited by nephrectomy. And furthermore, out of 299 cases nephrectomized for hypertension, only 24.4 per cent were cured. G. E. Wakerlin observes that hypertension of known etiology constitutes only 5 per cent of all cases of essential hypertension. H. W. Smith strikes a more pessimistic note. Of 242 cases on whom unilateral nephrectomy was done for hypertension, only 7 per cent reverted to normotension. G. J. Thompson relates that of 3,000 nephrectomies performed at the Mayo Clinic, only 11 per cent were associated with hypertension. He does, however, favor surgery in all cases where the kidney may be implicated as a factor in hypertension. It must be emphasized that, regardless of the merit of the statistical evidence reviewed, all cases of hypertension of unknown etiology are entitled to a urologic investigation of their renal status. It is only through such effort by the medical profession that a few unfortunates can be saved from this invariably fatal disease.

Diagnosis

The diagnosis of hypertension is elementary. However, the association of this prevalent disease with a definite etiologic factor may become a complex medical proj-

ect. A careful history is pertinent. Evaluation of the anatomic and physiologic status of the urinary tract is fundamental. This is accomplished by cystoscopy, radiography and differential renal function determinations. If the kidney is suspected, aortography, renal deliniation by means of presacral air injection and differential urea clearance are most helpful. To rule out the presence of adrenal tumor disease is of paramount importance. T. B. Wayman and E. B. Ferris, in discussing hypertension of known etiology, mention the phenomenon of adreno-cortical tumors, unilateral renal disease, polycystic renal degeneration and any condition that may progressively impair renal circulation.

Adjuncts to the diagnostic armamentarium have recently been reported by Brust and Ferris and Winter. The former two recommend the use of a ganglionic blocking agent, such as tetraethylammonium chloride, to eliminate the possibility of a neurogenic factor in renal hypertension in which case nephrectomy may not be beneficial. The latter, C. C. Winter, suggests the use of radioactive diodrast to determine more accurately the differential renal status pertaining to circulation and function.

Indications for surgery

The indications for surgery with reasonable expectation of reversal of the hypertensive state may be summed up as follows:

1. A unilateral diseased or/and atrophic kidney with a contralateral normal partner which had undergone compensatory hypertrophy.

2. Hypertension of relatively short duration, probably no longer than two years.

3. Demonstrable decrease in the caliber of the renal artery, be it due to intrinsic or extrinsic factors, which results in the production of progressively increasing renal ischemia—a true Goldblatt kidney.

4. Surgery, if contemplated, should be instituted early, before irreversible pathologic changes occur in the contralateral normal kidney.

Obviously, all the criteria for surgery may not be established in each case; but, if reasonable suspicion can be directed to the kidney as a culprit in hypertensive disease, surgical intervention is justifiable.

CASE 1

B. M., a 9-year-old female child, was admitted to Denver General Hospital in July, 1951, because of persistent hypertension, intense headache, eye pains with visual disturbances, insomnia, anoxemia and progressive weight loss.

Past history revealed a hospital admission in April, 1947, with a diagnosis of acute rheumatic fever following an episode of upper respiratory infection in March, 1947. Pertinent examination and laboratory findings at that time were:

1. Apical systolic murmur.
2. Sedimentation rate of 92 mm. per hour.
3. WBC, 8,000-17,000.
4. Urine, Sp. Gr. 1.104-1.035. Albumin, 4 plus.
5. Blood pressure, 80/30-88/44.
6. E.K.G.: Left axis deviation and sinus tachycardia.

A second admission in February, 1948, was occasioned by severe headaches and blood pressures of 150/110-170/140. Examination and laboratory findings at that time were:

1. Fundi indicative of hypertension.
2. Urine: trace of albumin.
3. N. P. N. 20-47 mgm. per cent.
4. Sed. rate, 3-20 mm./hour.
5. BMR 21.
6. Blood pressures from 130/80 to 200/140.
7. Retrograde and excretory urography indicated no gross pathology except for a smaller right kidney and moderate blunting of middle calices.

During this episode, both kidneys were explored with no significant findings relative to hypertension. Adrenals were normal bilaterally.

Final admission in July, 1951, was prompted by progressively advancing hypertension and associated devastating signs and symptoms that are inescapable in this dreadful disease. The chief of pediatrics insisted that the hypertension in this child was renal in origin and, upon his request, another complete urologic investigation of the case was instituted. The pertinent findings at that time were as follows:

1. Excretory and retrograde urograms demonstrated a smaller right kidney with filling defect between the upper and lower poles (Case 1, Fig. 1).
2. Urine essentially negative except for occasional granular casts, some rbc and wbc.
3. E.K.G. normal.
4. Sed. rate 11 mm./hour.
5. Blood chemistry normal.
6. Phenolsulfonphthalein excretion in 20 minutes was 15 per cent from the right kidney and 30 per cent from the left.
7. Urea clearance during the first 30 minutes was 8.1 from the right kidney and 14.2 from the left.
8. An aortogram showed a definite discrepancy in the caliber of the right and left renal arteries. Because of these findings and the otherwise hope-

less prognosis, a right nephrectomy was performed in September, 1951. A small kidney was found enclosed within a mass of fibrotic tissue. The renal artery gave one the feeling of a fibrous band. A mass of scar tissue was found separating the upper and lower poles of the kidney involving the cortex and medulla of the midsection and extending well into the hilum trapping the renal artery as it entered the kidney. Pathologic diagnoses were:

1. Congenitally hypoplastic right kidney.
2. Severe arteriosclerosis of the renal artery.
3. Old infarct involving the midsection of the kidney (Case 1, Figs. 2A and B).

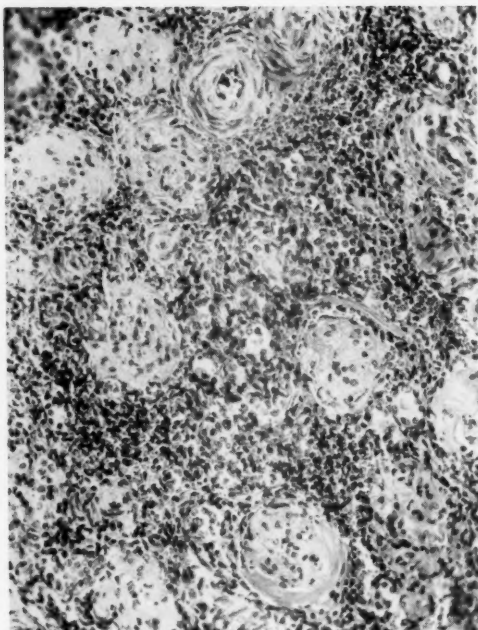
Postoperative course was smooth and uneventful. Symptomatic relief was immediate and dramatic. During the convalescing period, blood pressure ranged from 100 to 115 systolic and 50 to 80 diastolic. Headaches and visual disturbances entirely disappeared. The child behaved like any normal child of her age. She was discharged from the hospital on the 12th postoperative day, no longer sullen and dejected, but rather cheerful and hopeful.

The case was followed in the clinic for over five years. The blood pressure remained normal during this entire period. The child gained weight and attended school without any interruption. Throughout the period of observation she enjoyed a perfectly normal existence.

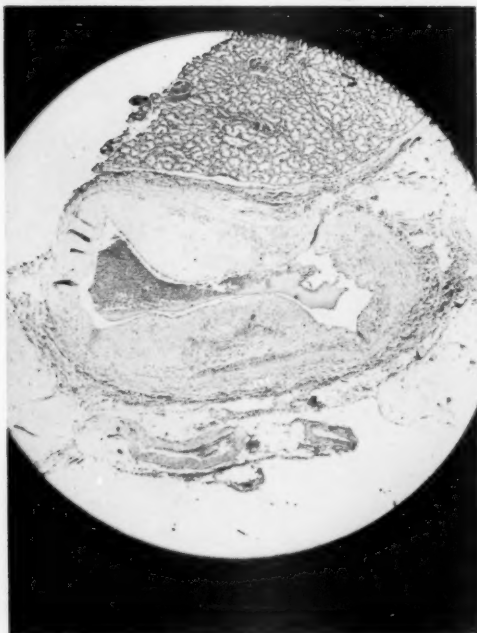
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Case 1. Fig. 1. Retrograde urograms indicating filling defect of right kidney pelvis.



Case 1, Fig. 2A. Section through infarct of kidney. Note marked fibrosis of renal parenchyma, vascular system, and interstitial tissue.



Case 1, Fig. 2B. Cross section of renal artery. Marked reduction of lumen and fibrotic hyperplasia of wall.

CASE 2

A. J. B., a white male 60 years of age, was referred by his physician for renal evaluation because of hypertension which appeared suddenly in July, 1952, and persisted until after surgery. The blood pressure during this interval of four months ranged from 152/95-190/120. This man presented himself with a history of spasmodic recurrent attacks of general "numbness" and "weakness." Headache, at times, was severe. His employment was frequently interrupted because of the incapacity occasioned by the presenting symptoms. Past history was non-contributory. His blood pressure in 1946 was 136/94; in 1949 120/82. Apparently it remained within this range until July, 1952.

The significant findings during the urological survey of the case were as follows:

1. Urine of low specific gravity (1.008). Proteinuria 3 plus. Sugar test negative. Sediment revealed many rbc, wbc, and granular casts.

2. BUN 29 mgm per cent.

3. Left kidney urine showed a proteinuria of 2 plus and hyaline casts. The amount of urine collected from the left kidney in 20 minutes was about 25 per cent of that from the right and of a lower specific gravity.

4. P. S. P., given intravenously, appeared within normal time and adequate concentration from the right kidney. From the left kidney, only a



Case 2, Fig. 1. Retrograde urograms. Hypoplastic left kidney.

faint trace of dye was seen within 20 minutes.

5. On subsequent studies P. S. P. appeared in bladder urine in 7 minutes. During the first and second half hours, the amount of urine excreted was 125 cc. with 38 per cent of dye and 230 cc. with 15 per cent of dye, respectively.

6. Retrograde radiologic evaluation indicated a normal right kidney, perhaps moderately hypertrophic, and a hypoplastic left kidney (Case 2, Fig. 1).

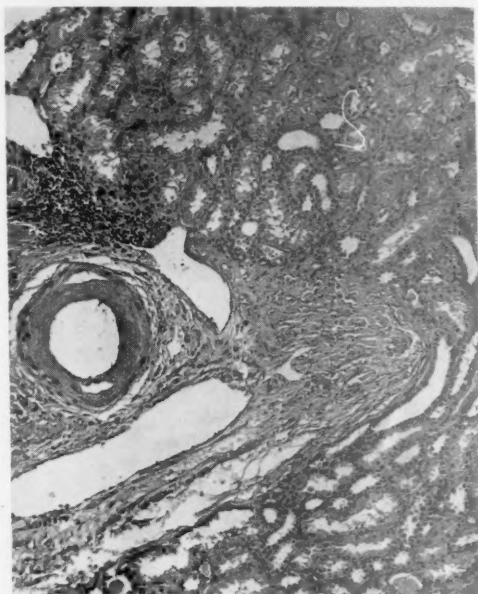
With the history of paroxysmal hypertension, the possibility of adrenal tumor was seriously considered and, after careful investigation, the presence of adrenocortical tumor was ruled out.

Careful scrutiny of the radiologic and laboratory evidence accumulated in this case proved strongly suggestive that the hypoplastic kidney was a factor in the hypertension. A left nephrectomy was successfully accomplished in October, 1952. Postoperative period in the hospital was uneventful with conspicuous absence of paroxysmal episodes of weakness and hypertension.

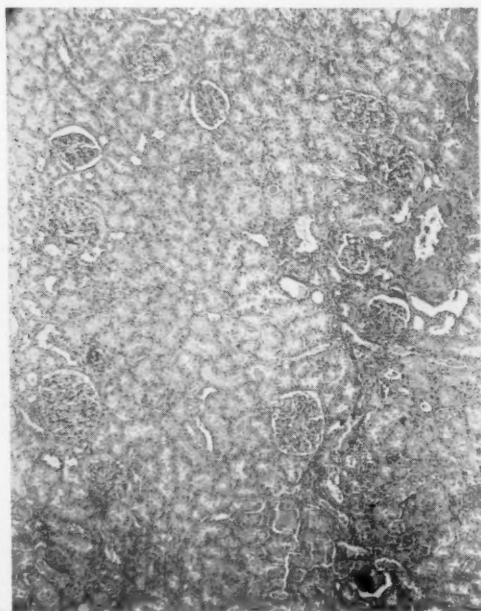
The kidney weighed 30 gms. and measured 6 x 4 x 2.5 cm. The renal artery and its branches were small with a maximum cross section diameter of 1 mm. Patchy fibrosis was encountered within the medullary portion close to the pelvis. Histologic and anatomic diagnosis, as stated by the pathologist, was "congenital hypoplasia of the left kidney and artery; vascular nephrosclerosis; degeneration of renal parenchyma; and chronic interstitial nephritis" (Case 2, Figs. 2A, B, and C).

CASE 3

O. M. M., a 22-year-old sophomore medical student, presented himself to the urologic service on
continued on page 86



Case 2, Fig. 2B. Cross section of small vessel. Note thickened wall.



Case 2, Fig. 2A. Section through kidney. Note shrunken glomeruli, and interstitial fibrosis.



Case 2, Fig. 2C. Cross section of renal artery. Small lumen. Thickened and fibrotic wall.

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January 19, 1957, because of severe pain in the left flank radiating to the left testis.

Since age of 5, he remembered having had episodes of intermittent renal colic associated with headache, nausea, and vomiting. Following these attacks, he would pass "Coca-Cola" colored urine for a few days. At age 16, while playing football, trauma to the left flank was followed by gross hematuria for two days. There was no history of dysuria or febrile episodes at that time. During respective hospital admissions in 1954, 1955 and 1956, no significant positive physical findings were noted. However, his blood pressure during the interval of 1954 through 1957 ranged between 118/55 and 170/70.

Laboratory findings on admission were not remarkable except that the white blood count was 10,000 and urine showed four plus albumin, 500 to 700 rbc and 30-40 wbc per low power field. Urologic investigation revealed a hydronephrotic, non-functioning left kidney with appreciable compensatory hypertrophy of a normal right organ (Case 3, Figs. 1A and B). On the basis of these findings and past history, a left nephrectomy was accomplished on January 23, 1957. Convalescence was normal and the patient was discharged on February 2, 1957.

The pertinent points in the pathologist's report were the 80 gram weight of the specimen and the small caliber of the renal artery and vein. Fol-

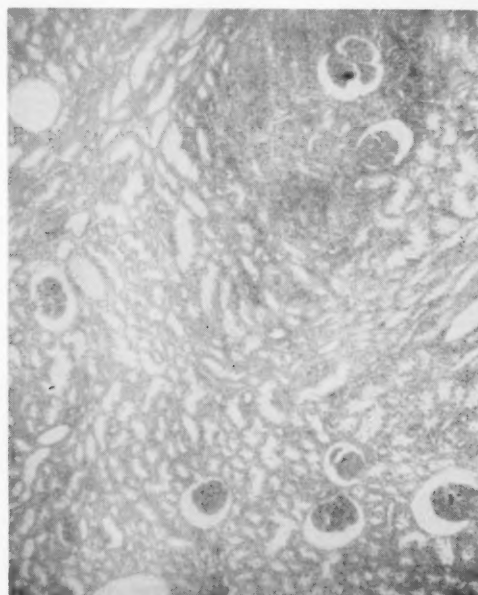
lowing histologic evaluation of the sections, a diagnosis of "congenital hypoplasia, chronic pyelonephritis, hydronephrosis and vascular arteriosclerosis" was given (Case 3, Figs. 2A and B).



Case 3, Fig. 1B. Retrograde of left kidney. Marked hydronephrosis, and uretero-pelvic obstruction.



Case 3, Fig. 1A. Normal right kidney. Nonfunctioning left kidney.



Case 3, Fig. 2A. Section through kidney. Note hyalinization of glomeruli. Interstitial fibrosis.

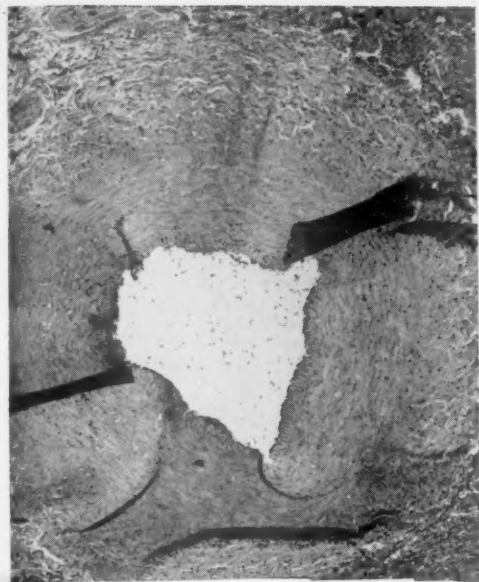


Fig. 2B. Cross section through large artery. Note small lumen and thickened fibrotic wall.

Immediately following surgery, the blood pressure remained at 150/90 and 130/80. During the six months interval postoperatively, the boy reported pressures ranging from 125/70 to 120/75. He is now completing his senior year in medicine and is enjoying good health and persistent normotension.

Discussion

Isolated cases of hypertension, which were reduced to normotension by removal of the offending kidney, have been reported by a number of clinicians interested in this field of medical endeavor. C. H. Snyder and associates have successfully operated on a 9-months-old child with marked hypertension brought on by an aneurysm of the renal artery. J. A. Haller, Jr., and associates cited a case of embolic renal infarction of the lower pole of the kidney with resultant hypertension which was relieved by nephrectomy. A rather unique case was recently reported by P. T. De Camp and associates. A 10-year-old girl, with a solitary left kidney and marked hypertension, was found to have coarctation of the juxta-aortic portion of the renal artery. Anastomosis of the splenic and the competent segment of the renal artery

resulted in immediate remission to normotension.

There are, of course, many cases that have been relieved of hypertension by unilateral nephrectomy. It is uniformly agreed by most investigators that hypertension in the young with unilateral renal disease responds more favorably to surgery than in adults with similar pathologic findings.

Three cases of hypertension with unilateral renal disease have been added to the literature. Surgical extirpation of the offending organ resulted in a reversal to normotension which remained constant for a period of two to seven years. Criteria of cure suggested by H. W. Smith have been fully complied with. Preoperative hypertension has been definitely established and the postoperative pressure remained constant in each case at or below 140/90.

It is of interest to note that these three patients embrace three distinct and different categories of renal disease and involve ages from 9 to 60. Case 1 presents an embolic renal infarct which, because of the progressively advancing extension and contraction of the fibrous tissue, compromised the renal circulation, resulting in renal ischemia such as described by Goldblatt.

Case 2 is that of congenital unilateral renal hypoplasia which, for reasons not clearly understood, became a cause of systemic hypertension at the age of 60. What anatomic and/or physiologic changes have taken place in the maldeveloped organ to bring it within the category of the Goldblatt phenomenon is rather difficult to say. However, the progressively advancing arteriosclerotic changes in the renal blood vessels, large and small, resulted in renal ischemia with concomitant liberation of pressor substances into the systemic circulation which rendered the patient a victim of paroxysmal hypertension.

Case 3 is one of renal hypoplasia complicated by hydronephrosis and intercurrent periodic pyelonephritis. The uretero-pyelographic studies and the past history of this 22-year-old boy would justifiably lead one to speculate that the maldevelopment of the kidney was not altogether due to congenital factors, but rather to progressively advancing atrophy. Stenosis at the uretero-pelvic junction and associated dilatations of the

renal pelvis may have been important factors in compression of the renal artery, with gradual reduction in the blood supply to the organ resulting in chronic renal ischemia. This characterizes it as a Goldblatt kidney and definite cause for periodic attacks of hypertension.

In retrospect, it is speculated that had the kidney been carefully investigated when symptoms first appeared at the age of 4 or 5, and the uretero-pelvic anatomical defect corrected at that time, the kidney could have been saved. An ounce of prevention is worth a pound of cure. This is a plea in behalf of exhaustive and timely investigation of all obscure and complex symptoms that a patient may present.

It may be true that the direct relationship of unilateral renal disease to hypertension may only occasionally be established. Yet, our total clinical experience demands

that our efforts be relentlessly applied toward this end. A case that is so diagnosed and the offending organ surgically removed before irreversible changes occur in the contralateral kidney will, in most instances, prove rewarding in that the hypertensive will permanently revert to a normotensive happy life.

Summary

Hypertension may, in a few instances, be caused by unilateral renal disease.

2. Surgical extirpation of the diseased kidney does, on occasion, result in reversion to normotension.

3. The Goldblatt phenomenon is stressed as an etiologic factor in each case.

4. Three such cases are reported.* •

*The assistance and cooperation of Drs. Harry Gordon, Albert Guggenheim, Dale Atkins, Clement Knobbe, Karl Neuberger, and Mr. Glen Mills are gratefully acknowledged. References have not been included because of space limitations.

Genitourinary tuberculosis*

Anthony A. Borski, M.D., Denver

High index of suspicion is essential for accurate diagnosis. Streptomycin, PAS, INH, and pyridoxine are used in therapy.

THE PROBLEM OF CONTROLLING AND TREATING tuberculosis in the Armed Forces is of considerable importance to the nation. It has been estimated that each case of tuberculosis costs the government about \$60,000.00 which includes training, hospitalization and disability benefits. It is the aim of the Armed Forces Medical Service to detect these cases early

in order to treat them properly and thereby prevent some of the disabilities resulting from the disease.

The genitourinary tract, in addition to the lungs, is one of the most frequent sites of clinically recognizable tuberculosis. Just how much of a problem is GU tract tuberculosis? The over-all incidence of GU tuberculosis in a series of 15,000 documented cases of tuberculosis of all types was 4 per cent.

A five-year breakdown obtained from Fitzsimons Army Hospital will give us another aspect of the problem.

Pulmonary tuberculosis has dropped approximately 50 per cent at FAH during the past five years, which is attributed to several factors. There has been a reduction in the number of military personnel since the Korean War and for the past two years, pulmonary tuberculosis has been treated in Air

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TABLE 1

| | 1953 | 1954 | 1955 | 1956 | 1957 |
|-------------------------------|------|------|------|------|------|
| Pulmonary TBC | 946 | 847 | 790 | 646 | 454 |
| GU TBC | 26 | 39 | 16 | 25 | 32 |
| Pulmonary and GU TBC | 13 | 21 | 8 | 4 | 7 |

Force Hospitals. However, GU tuberculosis has not declined appreciably. We attribute this to a greater awareness of and a more intensive search for GU tract tuberculosis which has resulted in essentially the same number of cases for the past five years.

Pathogenesis and pathology

The evidence indicates that infection in the GU tract is secondary to a focus elsewhere in the body. Renal tuberculosis occurs as a result of infection in an extrarenal site. The site is usually in the lungs; however osseous and intestinal foci have been described. Bacillema is produced by erosion of the blood vessel at a site of the extrarenal focus. Initial renal lesions are bilateral in the cortex and in the proximity of the glomeruli. They may heal by scar formation or become encysted. Ulceration into a renal tubule may give rise to a bacilluria. Pyuria need not be present and urography may be normal. The caseocavitary type of lesions are more clinically important. They occur in the renal papillae as a result of spread from cortical lesions. Caseation occurs in the papillary ducts causing sloughing into a minor calyx producing bacilluria, pyuria and hematuria. Lymphatic and direct spread is also possible. Periodic positive urine findings occur as a result of intermittent opening of the neck of the calyx. Spread to the lower urinary tract takes months or even years.

Contraction and ulceration are the chief features of ureteral disease. Autonephrectomy is a common result of stricturing of the ureter. Involvement of the bladder occurs secondary to renal tuberculosis. The types vary from patchy red areas and yellowish tubercles to the localized granulomatous, fungating lesions.

Genital tuberculosis is almost always secondary to urinary tuberculosis. The prostate is involved in 95 per cent of patients with

genital tuberculosis. The seminal vesicles and vas usually are infected from spread of organisms via the ejaculatory ducts. The tail of the epididymis is the most frequent site of involvement. External extension to the scrotum with fistulous formation is common. Female genital tuberculosis is usually the result of hematogenous dissemination or secondary to peritoneal or pelvic tuberculosis. Urinary tuberculosis in the female seldom involves the genital tract. Cases of direct spread during coitus have been described. This is the result of a mate having infection in the prostate or seminal vesicles.

TABLE 2
GU tuberculosis

| | 1953 | 1954 | 1955 | 1956 | 1957 |
|---------------------|------|------|------|------|------|
| Kidney (only) | 14 | 9 | 10 | 5 | 8 |
| Kidney and other | | | | | |
| GU organs | 9 | 25 | 4 | 16 | 18 |
| Other (only)* | 3 | 5 | 2 | 4 | 6 |
| TOTAL | 26 | 39 | 16 | 25 | 32 |

*Tbc. epididymitis, salpingitis, prostatitis, seminal vesiculitis, etc.

The signs and symptoms will vary with the site and extent of the disease. Pain of varying intensity can occur at any affected site. Many cases of tuberculous epididymitis are found only when there is rupture of a caseous area through the scrotal skin.

Diagnostic procedures

Routine urinalysis may reveal pyuria, albuminuria, and hematuria. Smears of the sediment are helpful but culture and guinea pig inoculation are necessary. Intravenous urography and retrograde pyelography are very important procedures. We use the former as a screening and functional index. Retrograde pyelography completes the studies and supplies differential culture specimens. Urethroscopy and cystoscopy is done in all cases of GU tuberculosis. Some authors advocate prostatic massage to collect samples but others believe that this is unwise because of the possibility of dissemination of the disease. We use this method only when there is a reluctance on the patient's part to pro-

duce semen for cultures. Three 24-hour urines for A.F.B. are a routine in all cases. Cultures of any local lesion are easy to obtain.

Therapy

With the advent of chemotherapy, the outlook for GU tuberculosis has been markedly affected. Prior to drugs, renal tuberculosis had a 50 per cent five-year mortality even with nephrectomy for unilateral disease. We use a regimen of drugs consisting of 1 gram of streptomycin every third day, 600 mgm. of isoniazid (INH) daily, 12 grams of paraaminosalicylic acid (PAS) daily, and 100 mgms. of pyridoxine daily. Pyridoxine hydrochloride is employed to prevent peripheral neuritis which occasionally was seen with the use of INH. INH levels are obtained at intervals and in some cases it is necessary to use 900 mgms. daily for suitable levels. The ideal INH blood level is .6 microgram.

Surgery is not performed until the patient has been on drug therapy for at least three months in order to prevent any dissemination of the disease. Three days prior and one week postoperative, streptomycin is administered daily. Large fibrous and necrotic renal lesions appear to respond to neither streptomycin, PAS, or INH. We feel that the best treatment for unilateral fibrocaseous renal tuberculosis is nephrectomy. Partial nephrectomy may be feasible where the disease is limited to a small segment of a kidney. The ureter is divided with electro-cautery or treated with phenol and alcohol after division. If there is obvious ureteral involvement, we make an abdominal incision and remove the ureter near the vesical juncture. There have been no cases of draining sinuses from the distal ureteral stumps.

Bladder lesions have responded well to instillations of a mixture of the anti-tuberculosis drugs three times daily for periods of one to two weeks. Scrotal lesions are excised locally at time of epididymectomy. The vas is not exteriorized. No cases of draining sinuses occurred postoperatively. Most of the cases are converted to negative urines in two to three months unless the lesions are far advanced. Drug resistance is rare with the triple use of drugs. Stricturing of ureters due to scar formation has been a problem

in some cases. Dilation with multiple catheters has produced poor results. The contracted bladders that we have seen were the result of pre-drug treatment. These unfortunate patients had minimal capacity; however, they preferred to void frequently rather than submit to surgical procedures designed to create the substitute type of bladders. Regardless of the site of infection or the amount of local therapy, the triple antituberculous drugs are continued in all cases for a minimum of one year and in some cases 18 to 24 months.

TABLE 3
Surgical treatment of GU tuberculosis

| | 1953 | 1954 | 1955 | 1956 | 1957 |
|--------------------|------|------|------|------|------|
| Nephrectomy | 4 | 3 | 4 | 4 | 5 |
| Hemi nephrectomy.. | 0 | 4 | 4 | 2 | 1 |
| Other* | 2 | 9 | 4 | 3 | 6 |
| TOTAL | 6 | 16 | 12 | 9 | 12 |

*Includes epididymectomies, TUR, salpingectomy, ureteroplasty, ureteral meatotomy, etc.

CASE REPORTS

Case 1: A 27-year-old male was first seen in March, 1957, at a station hospital where he was hospitalized for swelling of the right scrotum. This was diagnosed as an abscess. An incision and drainage of abscess was done and he was then discharged with a diagnosis of abscess, cause undetermined. Cultures were negative for routine organisms. There was a small amount of drainage from the scrotum for four months. In August, 1957, cultures were positive for A.F.B. He was then transferred to Fitzsimons Army Hospital and was placed on antituberculous therapy for one year. This case illustrates a lack of awareness of tuberculosis as a cause of genital pathology. A period of four months had elapsed before the diagnosis was made.

Case 2: A 24-year-old soldier was first seen in September, 1954, when he noted gross hematuria, dysuria and frequency. He was treated intermittently for 10 months for these symptoms without any specific diagnosis. In August, 1955, he was transferred to a general hospital for further studies. An intravenous urogram showed calcification and destruction of the kidney. Urine cultures were positive for A.F.B. No semen cultures for A.F.B. were done. He was placed on triple antituberculous drug therapy for three weeks, and then a left nephrectomy was performed. He was transferred to Fitzsimons Army

Hospital where he was maintained on triple anti-tuberculous drug therapy for 18 months. A cystoscopy in September, 1957, showed some granulations in the prostatic urethra and the prostatic ducts were patulous. These were typical prostatic tuberculous sequelae. Semen and urine cultures were negative at this time. He was discharged in October, 1957. He was seen again at Fitzsimons Army Hospital in June, 1958, for re-evaluation. He was asymptomatic. Urine cultures were negative; however, the semen cultures were positive for A.F.B. Patient was readmitted for treatment.

This case illustrates several important points. The delay in diagnosis was due to a lack of awareness of possible tuberculous infection. A semen culture for A.F.B. was not done at the time of initial work-up. Despite 18 months of therapy, a relapse occurred in the prostate and seminal vesicles. This emphasizes the need for follow-up care.

Case 3: A 57-year-old soldier was treated intermittently for two years for chronic prostatitis by a competent urologist. At the initial work-up, the patient had a complete GU evaluation and the intravenous urogram at that time showed caliectasis of the left superior calyx which was interpreted as due to chronic pyelonephritis. This patient was seen at intervals during the next two years whenever his prostatitis flared up. At the end of two years, the doctor decided to repeat the urogram. This showed a nonfunctioning left kidney. A retrograde urogram was performed which

showed a hydronephrosis and purulent drainage was obtained from the left renal pelvis. Cultures were positive for acid fast bacilli. Patient was transferred to Fitzsimons Army Hospital where he was treated for three months with antituberculous drug therapy. In July, 1957, he was taken to surgery for a left nephrectomy; however, at the time of the skin incision the patient had cardiac arrest. A thoracotomy was performed and cardiac massage was successful. He was continued on antituberculous therapy for an addition six months and then a left nephrectomy was performed.

This case illustrates several important points: A competent urologist can treat a patient for two years without an awareness of GU tuberculosis being present. At the same time, the patient can silently autonephrectomize himself without any apparent renal symptoms. Had the index of suspicion been higher, cultures could have been taken two years earlier and possibly saved the kidney. It is noteworthy that since this one particular case, this urologist has found four additional cases of early GU tract tuberculosis because he is searching for A.F.B.

Summary

The problem of GU tuberculosis at F.A.H. has been presented. Pathogenesis and therapy have been discussed. A plea is made for a greater awareness of GU tuberculosis as the cause of urogenital disease. *

Surgical-medical induction of labor

Lawrence T. Brown, M.D., Denver

A comparison of amniotomy and pituitary preparations used in various combinations.

A REVIEW OF INDUCTIONS OF LABOR at Presbyterian Hospital, Denver, for the five years 1954-1958, shows 870 attempts at induction, 13 different methods of induction, on 684 pregnancies. The latent period (the time interval between the start of induction and the start of labor) was determined for each at-

tempt. The average latent period for each method of induction was used as an index of the effectiveness of that method. This paper presents the data from only those cases in which, on the same patient, both amniotomy (A) and pituitary preparation (PP) were used for induction.

Order of medication

In 65 cases, PP was used first and, after an average time lapse of 7.6 hours, A was done. In 45 cases, A was done first and, after an average time lapse of 7.8 hours, PP was used. Those might be called the "double-try"

method since it would seem obvious that doctors did not originally intend to apply both methods of induction. In nine cases, the hospital records stated that PP and A were used at the same time. This might be called the "simultaneous method."

In 18 cases, PP was used first and, within less than one hour, A was done. In 29 cases, A was done first and, within less than one hour, PP was used. Those might be called the "combined method" since it would seem obvious that doctors intended to have whatever advantage might result from combining both methods on one case.

These data, with the average latent periods for each technic, are shown graphically in Fig. 1.

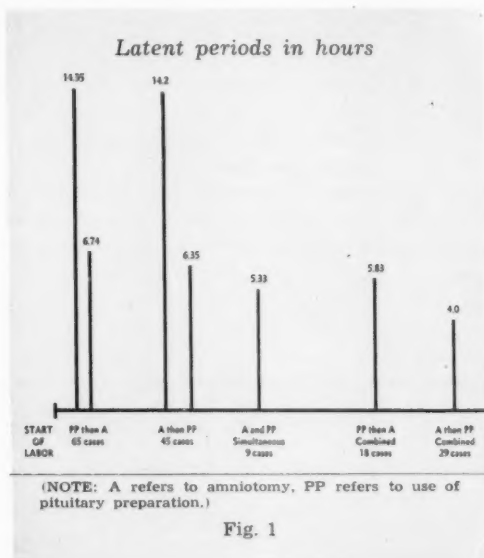


Fig. 1

Comment

Some of the cases in this report received PP intravenously and some intramuscularly. These are not differentiated in this analysis for, in all of the cases over the five years, the latent periods for each technic, IV or IM, were of so nearly the same length. The fact that 870 attempts at induction were made on only 684 pregnancies and the fact that, in 110 cases of this report, a second method was used so long after the first had been instituted, would mean that, in inductions of labor, doctors are groping.

The double-try method, wherein doctors used one method, gave up on it and tried another method some hours later, was used twice as often as combined methods. The relatively longer latent periods of the double-try methods would indicate that the delay between tries results in the one technic having no helpful effect upon the response to the other technic in the induction of labor.

Fitzgerald¹ reports that, at Chicago's Cook County Hospital, intravenous pitocin is used before amniotomy for induction of labor. Hukill², reporting over 5,000 inductions, states that if pitocin had not started labor in one hour amniotomy was done. Neither Fitzgerald nor Hukill report the length of latent periods, but their technic, as shown by our data, would produce a latent period of medium length. Such cases would have an induction which was not too fast, yet not too slow.

The most prompt response comes from doing A first closely followed by the use of PP (selecting individual method of administration and dosage). Kimbrough and Bishop³ confirm this but give no data to support their statement. Moir⁴ reports that pitocin is often without oxytocic effect unless the pregnant uterus is aborting its contents. Goldfarb⁵ tested isolated strips of pregnant uterine muscle obtained at cesarian sections and concluded that pitocin needs vasopressor action to promote oxytocic response.

When A is done first, it could be that the resultant lessening in size of the uterine contents produces a transient, mechanical vasopressor action in the uterine muscle. This would explain, in the light of the work of Moir and of Goldfarb, the short latent period when A closely followed by PP is used in the induction of labor.

Conclusion

When there is need for urgency in the induction of labor, amniotomy closely followed by a pituitary preparation will, as shown by its short latent period, give the most prompt response. •

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Congenital mitral stenosis with coarctation of the aorta*

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*Multiple anomalies should always
be sought for as this unusual
case shows. Absence of a
diastolic murmur proved misleading.*

MITRAL STENOSIS OF THE CONGENITAL TYPE has usually been regarded as an extremely rare lesion. The recent review of Ferencz and co-workers¹ has served to remove it from the category of medical curiosities and has emphasized the frequency of associated anomalies, particularly those involving the great vessels.

In general, congenital mitral stenosis itself has been incompatible with long life, sudden cardiac failure and death during some physiologic stress being the rule. Also, it has been recognized that the clinical findings may be bizarre and may not at all resemble those of the acquired variety. For these reasons it behooves the surgeon contemplating attack on an anomaly of the great vessels to make every reasonable investigation to detect and properly categorize any associated intracardiac anomalies.

CASE REPORT

Z. D., white male, was admitted to the Salt Lake County General Hospital at the age of 21 months. At birth, the delivery had been uneventful. Birth weight was 8 pounds 2 ounces, and early development was satisfactory until the age of 6 months, at which time a precordial murmur was noted by his physician. The parents had noted circumoral cyanosis with crying and the child had frequent respiratory infections. At the age of 13 months, he visited the out-patient department and

an ECG was obtained, which was read as showing right bundle branch block and an indeterminate auricular abnormality. His weight at that time was 22 pounds and height, 29½ inches, and he had developed fairly well. Following the out-patient visit, however, he did poorly. He began to lose weight and had a poor appetite. Tachypnea, with grunting respirations and more severe circumoral cyanosis were observed. There was intermittent cough and occasional vomiting.

Physical findings: Physical examination on admission showed his weight to be 20½ pounds, height 30 inches, pulse 100, respiration 50, blood pressure in the right arm 90/40 mm. Hg, and in the left arm 70/? mm. Hg. The child was frail, undernourished, and showed circumoral cyanosis at rest. There were a few palpable cervical nodes. The costal arches were flared and some precordial prominence was present. A systolic thrill was palpable from the third to the fifth left intercostal spaces. A loud, long, grade 4 systolic murmur was heard throughout the precordium, maximal along the left parasternal border at the third and fourth interspaces. The pulmonic second sound was slightly louder than the aortic second sound. Peripheral pulses were detectable, but slightly weaker in the left arm. Liver was palpable 2.5 cm. below the costal margin. Spleen could not be felt. Lungs were clear to auscultation and percussion. Extremities appeared normal, there being no clubbing, cyanosis or edema. Neurologic examination showed no significant abnormalities.

An admission ECG was interpreted as showing similar findings to those of the previous one and, in addition, right ventricular hypertrophy, "pulmonale" type P waves, and ST-T changes which had not been present before.

Cardiac catheterization was attempted via the femoral vein, but only the inferior vena cava, right atrium, and superior vena cava could be entered. All attempts to enter the right ventricle failed, and because of runs of tachycardia and temperature elevation, the procedure was discontinued. Following this, the patient developed acute myocardial failure, and was treated with digitalis and mercurial diuretics. Under this regime, the pulse rate fell to 102 and the liver diminished in size.

continued on next page

*From the University of Utah College of Medicine.

Laboratory data: X-ray studies showed left ventricular enlargement with poor visualization of the aorta, which was presumed to be due to hypoplasia. The vascular pattern of the lung fields was felt to be consistent with passive congestion, showing a diffuse haze radiating from both hilar regions without evidence of enlargement of the vascular trunks themselves. Therefore, the possibility of a patent ductus arteriosus was discounted. There was evidence of rib notching bilaterally, characteristic of that usually seen only in adults with coarctation of the aorta. Fluoroscopy demonstrated moderate left atrial enlargement with posterior esophageal displacement. The urinalysis showed a trace of sugar, but was otherwise not remarkable. The hematocrit was 39 per cent, white blood count 10,750 with a differential within normal limits. The bleeding and clotting mechanisms were satisfactory.

On the basis of this workup, the clinical impression was: (1) coarctation of the aorta, and (2) probable interventricular septal defect.

Clinical course: Because the patient had done so poorly and despite the fact that no proof of diagnosis of the intracardiac lesion was to be had, it was felt advisable to attack the coarctation surgically. Accordingly, an exploratory thoracotomy was carried out. The heart exhibited a systolic thrill throughout, maximal in the upper left ventricle area. The aorta showed a classical adult-type coarctation, located well below the subclavian artery root. A routine resection of the coarctate segment was carried out, and primary anastomosis achieved without incident. As the suture line was being completed, the cardiac action suddenly became less forceful, but was quickly restored by a Vasoxyl drip begun by the anesthesiologist. The chest was quickly closed, but as the patient was being turned, respiration suddenly became labored. The chest was quickly reopened and the heart found to be beating very slowly and feebly. Cardiac massage and intracardiac calcium gluconate and epinephrine were employed with a satisfactory response. After protracted observation, during which the heart action was entirely satisfactory, the chest was again closed. The patient was taken to the recovery room and did well for about two hours, at which time a further sudden cardiac arrest ensued which failed to respond to resuscitative measures.

At autopsy, the surgical anastomosis of the aorta was intact. A severe congenital stenosis of the mitral valve was found, the orifice of which measured 2 mm. in diameter. The valve cusps, chordae tendineae, and papillary muscles were conglutinated and fibrosed to the extent that the individual structures could not be identified. The endocardium throughout the heart was thickened and the aortic valve showed anomalous development without stenosis of the aortic ring. The remainder of the autopsy was not remarkable.

Comment

Antemortem diagnosis of congenital mitral stenosis has been quite unusual. It was frustrated in this case by technical difficulties incident to cardiac catheterization, during which entry into the right ventricle was not achieved. The purely systolic character of the murmur and thrill was further misleading, although this has previously been described in several instances¹⁻⁶. Attention was further focused on the coarctation of the aorta by the observation of rib notching on the x-ray films, a finding which is unusual before the age of 9 or 10 years.

The difficulties associated with diagnosis of congenital mitral stenosis, plus the numerous and diverse anomalies which may be associated therewith¹, plus the fact that many patients do reasonably well until their sudden precipitate dive into congestive failure, have been factors preventing direct surgical attack on the mitral stenosis. Of such cases that have been attempted, only one⁷, to our knowledge, met with any degree of success. It is most unlikely that mitral valvulotomy could have been carried out effectively in this instance because of the tiny orifice and the advanced involvement of subvalvular structures.

The presence of congenital mitral stenosis, be it so diagnosed, should undoubtedly be regarded as an absolute contraindication to resection of an aortic coarctation, at least until the mitral stenosis has been relieved. Patients with this combination of anomalies probably only survive because the coarctation forces the major part of the small ventricular output into cerebral and coronary channels. Surgical disruption of this compensatory mechanism probably accounted for the mortality in the case reported here.

Ferencz¹ collected and observed seven cases of congenital mitral stenosis associated with coarctation of the aorta, in three of which surgical ablation of the coarctation was attempted with ensuing death of the patient. After the experience cited in the case report above, we should like to add our emphasis to the words of Swan and co-workers⁸, who stressed the importance of accurate intracardiac diagnosis in surgical candidates with anomalies of the great vessels.

Summary

1. A case is presented exhibiting congenital mitral stenosis associated with coarctation of the aorta, in which death followed surgical attack on the coarctation, made in ignorance of the presence of the mitral stenosis.

2. The frequency of multiple anomalies, particularly of the great vessels, associated with congenital mitral stenosis, is reaffirmed.

3. Other interesting facets of the case, namely: presence of rib notching at the age of 21 months, and the absence of any diastolic component to the murmur and thrill, are discussed.

4. The importance of accurate diagnosis

of intracardiac lesions prior to surgical attack on great vessel anomalies is emphasized. •

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Correction

Dr. John Bouslog's article entitled "Care of the Cancer Patient," as carried in the September, 1959, issue of the Rocky Mountain Medical Journal, contained two publication errors. These errors occur on pages 49 and 50. The x-rays on page 49, shown for case number 3, should be shown on page 50 for case number 4. Likewise, the x-rays on page 50, shown for case number 4, should be shown on page 49 for case number 3.

The following footnote was also omitted from the article: Presented before the 88th annual session of the Colorado State Medical Society at Colorado Springs, September 24-27, 1958.

All reprints of this article will be printed in corrected form.

Elbow fractures cont. from page 72

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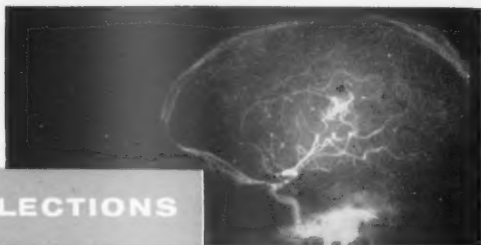
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Shadow or substance

Marcus J. Smith, M.D., Santa Fe, New Mexico

Apothegm

"Roentgenologic examination of the chest is one of the most important diagnostic procedures developed in the last half century. The results of its use are highly reliable *so long as they are integrated with all other clinical findings, the history, the symptoms and the laboratory data.*" (Garland, *italics ours*).

Clinical data

A 50-year-old mining engineer complained that general malaise, low grade fever and progressive weight loss had persisted for three months. He had worked in various coal, quartz and copper mines for many years. An enlarged right tonsil and several prominent lymph nodes were noted in the right side of the neck. A biopsy was refused. The patient was treated with antibiotics with some decrease in the size of the lymph nodes.

X-ray studies

An x-ray of the chest showed numerous stringy densities at the right base. A right parahilar density extended laterally and was interpreted as a peribronchial infiltration. Enlarged hilar shadows were also present. Similar, though less marked changes were situated at the left hilum. A diagnosis of silicosis was suggested on the basis of the pulmonary emphysema, basal fibrosis of the right lung, pleural adhesions and enlarged hilar nodes. Associated pulmonary tuberculosis was considered.

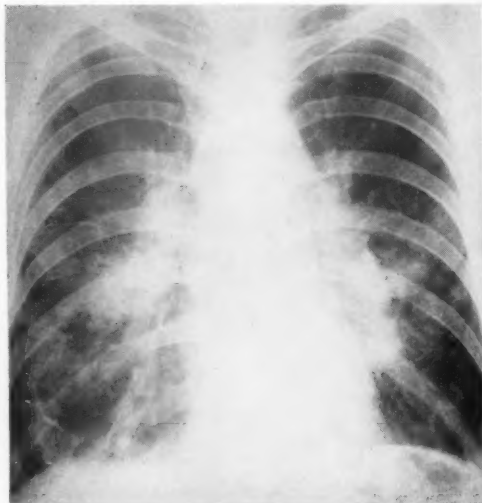
Clinical course

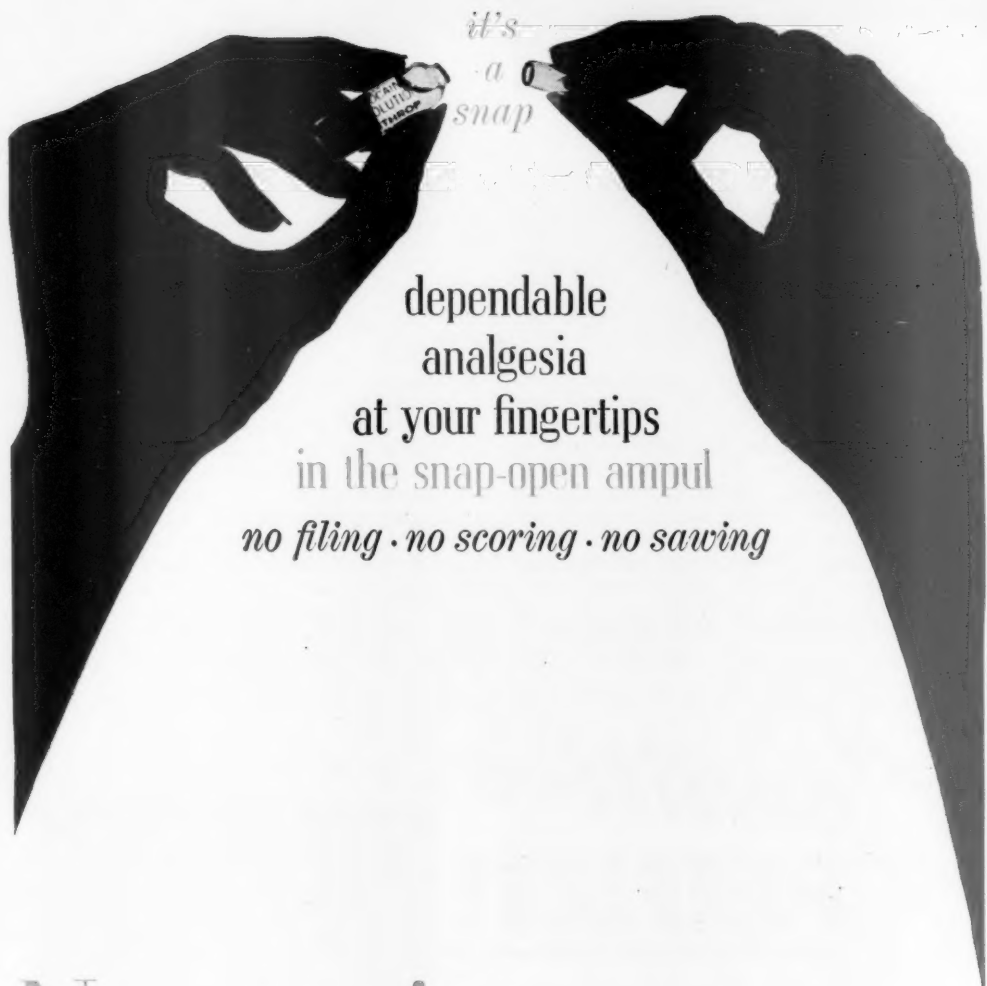
The symptoms worsened, further loss of weight occurred and the spleen enlarged. Finally a biopsy of a cervical node disclosed lymphosarcoma. Axillary and inguinal nodes became palpable and the pulmonary infiltrations increased. Despite tempo-

rary mild alleviation of signs and subjective relief with radiation and nitrogen mustards, the disease ultimately progressed and the patient succumbed in about one year. An autopsy disclosed a very widely disseminated lymphoma.

Epicrisis

The diagnostic radiologist, to be effective, must, when his data permit, state conclusions. Such interpretations may (1) merely restate what the clinician already knows, (2) mislead him, or (3) contribute constructively to the clinical picture. In this case, the x-ray *interpretation* proved misleading—it was molded from insufficient clinical information.





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THE WASHINGTON SCENE

A monthly news summary from the nation's capital by the Washington Office of the A.M.A.

Congress this year failed to take final action on any legislation of major interest to the medical profession except for the annual appropriation for medical research.

However, work was started on three measures of particular concern to physicians—the Forand, Keogh-Simpson and international health research bills. Showdown votes on them are probable next year. If there are not votes next year, they will die and must be reintroduced in 1961 if they are to be considered further by Congress.

The House Ways and Means Committee held hearings on the Forand bill, but deferred showdown voting on it until next year. The legislation—which is vigorously opposed by the medical profession, other groups on the health team and the Eisenhower Administration—would provide hospital, surgical and nursing home care for federal Social Security beneficiaries. Social Security taxes would be raised to help finance the expensive program.

The Keogh-Simpson bill, after being approved by the House, was left hanging in the Senate Finance Committee. The Senate committee held two sets of hearings. It could vote early next year on the legislation which would grant income tax deferrals to physicians and other self-employed persons as an incentive to invest in private pension plans.

Chairman Oren Harris (D., Ark.) postponed until next session a vote by the House Commerce Committee on the Senate-approved international medical research bill because of a backlog of more urgent measures requiring committee action this year. He said that "a diligent effort" would be made during the recess to clarify a number of points at issue revealed in testimony before his committee.

The bill calls for an annual \$50 million authorization to finance a new national institute of health to foster international medical research programs and cooperation. The Administration opposes some of its provisions.

President Eisenhower and Arthur S. Flemming, Secretary of Health, Education and Welfare, made clear that they didn't feel bound to spend the additional \$106 million which Congress voted for medical research. Congress raised the \$294 million requested by the President to \$400 million.

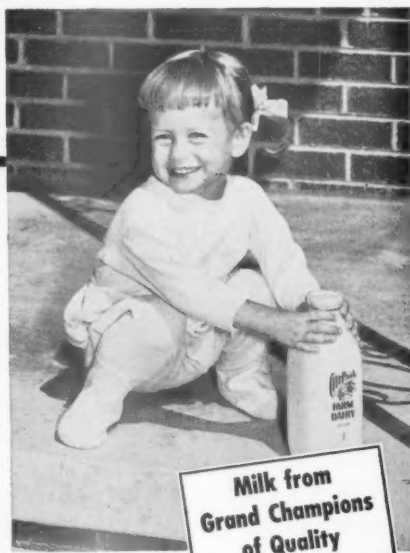
Mr. Eisenhower expressed concern that Congress is going too fast in providing medical research funds which are administered by the Na-

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tional Institutes of Health. He warned of a danger that the quality of research projects might be lowered and that manpower and other resources might be diverted from "equally vital teaching and medical practice."

He directed that every project approved must be "of such great promise that its deferment would be likely to delay progress in medical discovery."

Secretary Flemming said that the President's criteria would be followed conscientiously. But the Secretary gave assurance that the restrictions would not be so rigid as to hamper research by denying funds for worthwhile projects.

One of the most important and surprising developments during this session of Congress was the political power shown by Mr. Eisenhower, a lame-duck Republican President, in generally calling the shots on legislation although Democrats controlled the House and Senate with substantial majorities.

In his fight against "big spending" measures sponsored by Democrats, the President effectively used his veto power to get the bills more to his liking. The Democrats were unable to muster the votes to override vetoes of two housing bills.

A third compromise housing bill retained three provisions of interest to the medical profession. One would provide Federal Housing Administration loan guarantees for building proprietary nursing homes. A second would provide FHA loan guarantees and direct loans for housing for elderly

persons. The third would authorize loans for construction of housing for interns and nurses.

Live polio virus vaccine may be licensed for public use within a year or two. Dr. Leroy E. Burney, Surgeon General of the Public Health Service, said:

"If energetic efforts are continued to find answers to the remaining technical questions concerning safety, effectiveness and manufacturing procedures, one or more of the three vaccines now being proposed may be under production within one to two years."

Primary responsibility for radiation health safety has been transferred from the Atomic Energy Commission to the Department of Health, Education and Welfare.

Such a shift in responsibility was called for in legislation pending in Congress but President Eisenhower ordered the transfer without Congressional action.

The President directed HEW to "intensify its radiological health efforts and have primary responsibility . . . for the collation, analysis and interpretation of data on environmental radiation levels such as natural background, radiography, medical and industrial uses of isotopes and x-rays and fall-out."

HEW Secretary Flemming also was named chairman of a cabinet-level Federal Radiation Council.



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ORGANIZATION



NEW MEXICO

Interim House of Delegates Meeting

The Interim House of Delegates Meeting of the New Mexico Medical Society will be held on November 5 and 6, in Roswell, New Mexico, during the Southwestern Medical Association Meeting.

The first session of the House will convene in the auditorium of the Roswell High School, at 2:00 p.m., November 5, and it is anticipated that this session will recess at approximately 3:30 p.m. The three reference committees will begin their hearings immediately after recess has been declared.

The second session of the House will convene in the High School at 2:00 p.m., November 6, and will remain in session until all business has been transacted.

Southwestern Medical Association's clinical program will begin at 8:45 a.m., November 5, and the final clinical program will end at noon, Saturday, November 7. No afternoon programs will be held. The Association will have a smoker on Thursday evening, November 5, and a dinner-dance on November 6.

Council of the New Mexico Medical Society will meet in Roswell the afternoon and evening of November 4.

Write George Richardson, M.D., 307 N. Penn., Roswell, for room reservations.



UTAH

Refresher course in anesthesiology

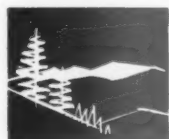
The Divisions of Postgraduate Medical Education and Anesthesiology are conducting a postgraduate refresher course for physicians interested in anesthesiology from February 8 through February 11, 1960. The course will be limited to 30 applicants. The time will be divided between lectures and demonstrations and practical application in the operating room. For further information, inquire at University of Utah College of Medicine,

Division of Graduate and Postgraduate Medical Education, 116 Medical Building, Salt Lake City.

Pathologist warns of air pollution

In a talk to the Utah Tuberculosis and Health Association, Dr. Richard A. Call, pathologist, asserted that the growth of population and industry in parts of Utah may create a serious air pollution problem unless the state adopts and enforces good protective laws. Dr. Call said that irritant gases, such as sulfur dioxide and ozone, have an adverse effect on breathing ability.

It was reported that the State Health Department is ready to begin an air pollution study in cooperation with U. S. Public Health Service as soon as the federal agency gives the go-ahead signal.



COLORADO

Student Health Center opens

Monday morning, September 21, the doors were opened on the new Wardenburg Student Health Center, offering the University of Colorado Boulder campus its first hospital service in 33 years.

The million-dollar sandstone infirmary has the latest hospital and clinical equipment and has a staff of 52—physicians, nurses, technicians and specialists. It is equipped to handle cases ranging from runny noses to broken legs. During Summer Session the center offered clinical services.

A gift from alumni Mr. and Mrs. F. A. Wardenburg, Wilmington, Del., it fills a gap in medical care that the university has felt since the medical school moved to Denver in 1925.

Dr. Anderson new President-elect

Cyrus W. Anderson, M.D., of Denver, was unanimously chosen as President-elect of the Colorado State Medical Society on September 9, by the Society's House of Delegates. He will succeed Dr. John L. McDonald as President of the Society at the 1960 annual meeting, September 14-17 at Estes Park.

Dr. Anderson is a native Denverite, born in 1897. He attended Denver public schools, East Denver High School and Denver University.

continued on page 113

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Age: 55

Sex: Male

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Each teaspoonful (5 ml.) contains 870 mg.
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1. Clark, G.M.: Personal Communication, 1958.

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1920, he received his M.D. degree from the University of Colorado, where he was a member of Beta Theta Pi fraternity. He is also a member of Phi Rho Sigma medical fraternity.

Since completing internship at Mercy Hospital in Denver, Dr. Anderson has engaged in the private practice of medicine in Denver. In 1921 he married Juaneta Fruth. They have four daughters and eight grandchildren.

From 1930 to 1942 he held a commission as Captain in the Medical Reserve, receiving a medical discharge in 1942.

Before being chosen President-elect of the Colorado State Medical Society, Dr. Anderson served as Trustee, Chairman of the Board, Chairman of the Legislative Committee and Chairman of the Publicity Committee of the Society.

He has served as Vice President, President-elect, President and is currently a member of the Board of Trustees of the Denver Medical Society.

Among his many other activities Dr. Anderson is a Founder Member of the Southwestern Surgical Congress, past President of Denver General Hospital staff. He has also served as Secretary, Vice President and President of Mercy Hospital staff. He is past President of the Colorado Chapter, American Academy of General Practice, and also

served as National Director and member of the Executive Committee of the AAGP. He is a past National President of the Association of American Physicians & Surgeons, Inc., and is currently a National Director of that association. He is also currently a Trustee of Colorado Medical Service, Inc.

Dr. Anderson was President of the President's Round Table of Denver in 1956. He is a Rotarian and past President of the Denver Rotary Club; a 32nd Degree Mason and Past Master, Emulation Lodge No. 154; and a life member of Denver Athletic Club. His hobbies are photography, fishing and bowling.

Dr. and Mrs. Anderson reside at 1101 Humboldt Street, Denver.

New Society officers

Dr. John L. McDonald of Colorado Springs was installed as President of the Colorado State Medical Society at the Society's 89th Annual Session in Denver, September 8-11. Dr. McDonald, a specialist in cardiovascular diseases, succeeds Dr. John I. Zarit of Denver.

New President-elect of the Society, chosen at the House of Delegates meeting on September 9, is Dr. Cyrus W. Anderson of Denver.

Other officers elected or re-elected at the Annual Session are: Drs. J. Alan Shand of La Junta, Vice President; W. C. Service of Colorado

continued on page 116



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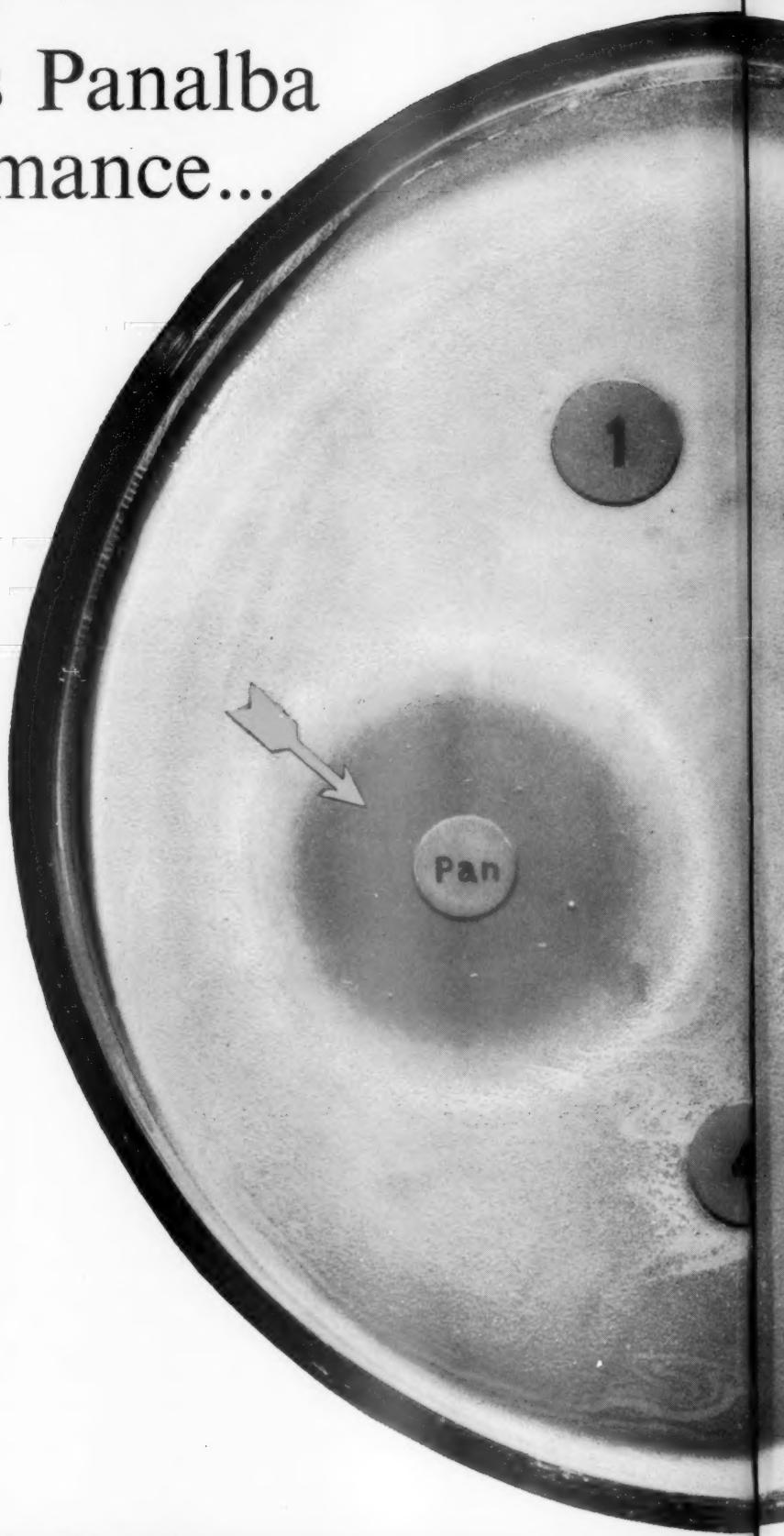
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Springs, Treasurer for a three-year term; and Carl H. McLauthlin of Denver, Trustee for a three-year term.

Three Councilors were elected, each for a three-year term. They are: Drs. John Simon of Englewood, Councilor, District No. 2; Herman W. Roth of Monte Vista, Councilor, District No. 8; and Scott Gale of Pueblo, Councilor, District No. 9.

Elected to the Grievance Committee for two-year terms were: Drs. Harper Kerr of Pueblo, John W. McDonald of Sterling, Joel Husted of Boulder, James Orr of Fruita, Paul Tramp of Loveland and Theodore Gleichman of Denver. Dr. R. L. Speck of Cortez was elected to the Grievance Committee for a one-year term to fill a vacancy.

Drs. E. H. Munro of Grand Junction and I. E. Hendryson of Denver were re-elected as Delegates to the A.M.A. for two-year terms. Re-elected Alternate Delegates to the A.M.A. are: Drs. Harlan E. McClure of Lamar and Clare C. Wiley of Longmont for two-year terms.

New Speaker of the House of Delegates is Dr. William Covode of Denver and the newly elected Vice Speaker of the House is Dr. Heman R. Bull of Grand Junction.

Dr. W. W. King of Denver was re-elected as Foundation Advocate.



The House of Delegates of the Colorado State Medical Society considered many important questions during the Society's 1959 Annual Session, September 8 to 11. Among the actions taken by the Society were:

Blue Shield Fee Schedule

The House accepted final concrete proposals of Blue Shield Fee Schedule Advisory Committee for implementation of the new "Standard A" and "Preferred A" plans, whereby these and the existing "Preferred" plan will be offered to the people of Colorado from now on. The existing "Standard Plan" may be retained by individuals and groups already holding it, but it will not be offered to new subscribers.

The reference committee referred to this expansion as a significant advance in Blue Shield coverage to more people, and a much more realistic remuneration to the medical profession. The new plans had been approved "in principle" at last February's Clinical Session, but final approval was deferred until September when the Advisory

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Robert W. Davis, M.D.
Richard L. Conde, M.D.
Paul A. Draper, M.D.
Charles W. McClellan, M.D.
James E. Edwards, M.D.

Committee could develop and present complete fee schedules.

In the same action the House outlined a definite method whereby conferences will be held in the very near future to solve existing misunderstandings between certain specialty groups and the Blue Shield plan in recognition of inadequate Blue Shield fees for those specialty groups and the public need and desire for more comprehensive coverage.

Committee reorganization postponed

Plans to reorganize the Society's committees into a "Council System" similar to that of the A.M.A. and several other state medical societies was postponed by the House for at least one year. The streamlining plan had been proposed by an Ad Hoc Committee on By-Law Revision.

The House asked the Board of Trustees to make a special interim report in February on this subject and bring the matter up for second consideration at the Society's next annual meeting in September, 1960.

Adams County-Aurora Medical Society chartered

A new component of the Colorado State Medical Society, the Adams County-Aurora Medical Society, was ordered chartered by the House of Delegates following study and approval by both the Board of Councilors and the Credentials Com-

mittee of the State Society.

The new society includes all of Adams County (formerly under jurisdiction of the Denver Medical Society) and all of the city of Aurora including that part of the city which is in Arapahoe County. Petitions for the new society had the advance blessing of Arapahoe County and Denver Medical Societies. At present 20 members comprise the new group, most of them former members of the Arapahoe County Medical Society.

The new society has already offered waiver of jurisdiction over its western section so that those doctors in the Westminster area may, if desired, continue to belong to the Clear Creek Medical Society.

continued on page 122

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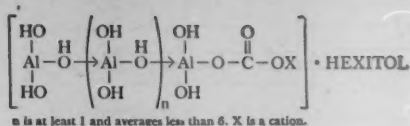
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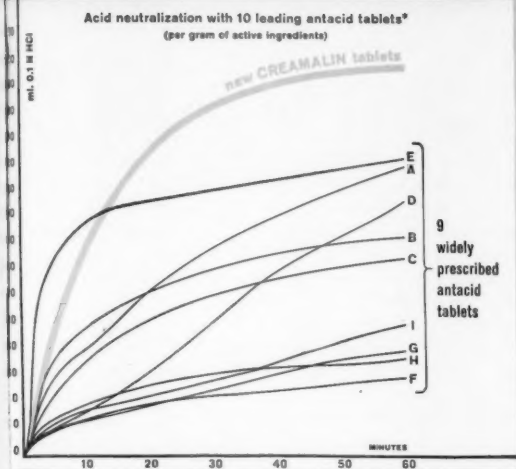
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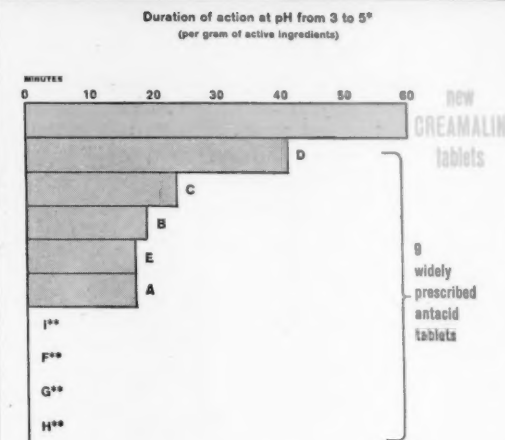
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*Hinkel, E. T., Jr., Fisher, and Tainter, M. L.: A new highly reactive aluminum hydroxide complex for gastric hyperacidity. To be published.

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Grievance Committee instructed

The State Society's House of Delegates instructed its Grievance Committee to call attention of the Board of Medical Examiners immediately to any complaints against physicians who are not members of the Society when the complaints allege unprofessional conduct.

The House also directed that there be closer liaison than in the past between the Society's Grievance Committee and the Colorado State Board of Medical Examiners.

By-laws amended

The Society's by-laws were amended in only one small section during the Annual Session. The amendment was made to clarify the eligibility of young physicians for Junior Active Membership which some component societies felt has not been clear in the by-laws.

Honorarium established for Society Presidents

In his final speech to the House of Delegates, outgoing President, John I. Zarit, emphasized the financial sacrifice which every President of the Colorado State Medical Society has had to make and recommended that an honorarium be provided for future Society Presidents.

Upon study of Dr. Zarit's recommendations, and in view of the Society's excellent financial condition, the House, through a reference committee, directed that hereafter the President of the Society shall be accorded not only his traveling expenses as in the past, but also a monthly honorarium and an additional per diem while traveling on the Society's business outside of Colorado.

Obituaries

Leading U. S. Pathologist passes away

James B. McNaught, M.D., died at Albuquerque on August 7, 1959. Dr. McNaught was born in Girard, Kansas, on July 11, 1894, and received his B.A. and M.A. degrees from the University of Kansas and an M.D. degree from Stanford University in 1931.

He taught at Stanford from 1931 to 1945 when he became a full professor and head of the pathology department at the C.U. Medical School. He was licensed in Colorado in 1945. Dr. McNaught was considered to be one of America's leading pathologists. He was the only individual to ever serve as president of all four associations of pathologists; the four being The American Board of Pathology, American Association of Pathologists, International Academy of Pathology and the American Society of Clinical Pathologists. In 1957 he was awarded the Certificate of Highest

continued on page 134

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SOMA has an unique analgesic action. It apparently modifies central pain perception without abolishing peripheral pain reflexes. **SOMA** is particularly effective in relieving joint pain. Patients say that they feel better and sleep better with **SOMA** than with previously used analgesic, sedative or relaxant drugs.

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Organization cont. from page 122

Merit, the highest award ever given by the American Society of Clinical Pathologists. Dr. McNaught belonged to numerous professional organizations. His hobbies were raising tropical fish and collecting glass paperweights, coins and stamps.

After asking to be relieved of his administrative duties at the Medical School following a stroke in 1955, he served as VA consultant. He died of a heart attack at the Veterans Administration Hospital at Albuquerque.

Memorial services were held at the C.U. Medical Center and more than 300 C.U. Medical School

faculty members, students and employees attended the services. Surviving are two sisters.

Young general practitioner dies

John N. Asborno of Denver died on August 14, 1959. Dr. Asborno was born in Denver and graduated from Regis College. He took his medical training at Creighton University and interned at St. Anthony's Hospital in Denver. He served in the Air Force as a medical officer from 1957 to the first of this year. Dr. Asborno became a member of the Clear Creek Valley Medical Society in March of this year and an active junior member of the Colorado State Medical Society.

He was a good teacher as well as an excellent general practitioner, teaching embryology at Regis College.

Surviving are his parents, a sister, a niece and a nephew.

Durango doctor dies

Charles L. Mason, M.D., of Durango, died August 5, 1959. Dr. Mason was born in Durango on November 18, 1906, and attended the University of Colorado Medical School. He was a member of the San Juan Basin Medical Society and the Colorado State Society since 1936. He served on the Board of Supervisors in 1950 and '51 and on the Board of Councilors from 1955 to 1958.

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timed-release tablets

Controls congestion

with Triaminic,^{1,2,3} the leading oral nasal decongestant.

Controls aches and fever

with well-tolerated APAP, non-addictive analgesic⁴ and excellent antipyretic.⁵

Each TUSSAGESIC Tablet provides:

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| TRIAMINIC® | 50 mg. |
| (phenylpropanolamine HCl | 25 mg. |
| pheniramine maleate | 12.5 mg. |
| pyrilamine maleate | 12.5 mg.) |
| Dormethan | |
| (brand of dextromethorphan HBr) | 30 mg. |
| Terpin hydrate | 180 mg. |
| APAP (N-acetyl-p-aminophenol) | 325 mg. |

References: 1. Lhotka, F. M.: Illinois M. J. 112:259 (Dec.) 1957. 2. Fabricant, N. D.: E.E.N.T. Monthly 37:460 (July) 1958. 3. Farmer, D. F.: Clin. Med. 5:1183 (Sept.) 1958. 4. Bonica, J. J.: in Drugs of Choice, Mosby, St. Louis, 1958, p. 272. 5. Dascomb, H. E.: in Current Therapy, Saunders, Phila., 1958, p.78. 6. Bickerman, H. A.: in Drugs of Choice, Mosby, St. Louis, 1958, p.547.

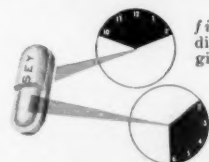
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with terpin hydrate, classic expectorant.

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first — the outer layer dissolves within minutes to give 3 to 4 hours of relief

then — the inner core releases its ingredients to sustain relief for 3 to 4 more hours

Dosage: One tablet in the morning, midafternoon and at bedtime. Pediatric dosage chart for Tussagesic Suspension available on request.

TUSSAGESIC SUSPENSION provides palatability and convenience which make it especially attractive to children and other patients who prefer liquid medication.

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A.M.A. to hold 13th Clinical Meeting in Dallas

The American Medical Association's 13th clinical meeting will be held December 1-4 in Dallas, Texas, and is expected to attract some 3,500 physicians.

Among the subjects to be discussed on the scientific program are soft tissue injury; whiplash injuries of the neck; diabetes; heart murmurs in children; new laboratory procedures; new resuscitation techniques; premarital and marital counseling, and the problem child.

Dr. Hubertus Strughold, professor of space medicine at the School of Aviation Medicine, Randolph Air Force Base, Texas, will be principal speaker at the opening scientific session December 1. Dr. Strughold, often called "the father of space medicine," will discuss the role of medicine in the space age.

The winner of the A.M.A.'s Distinguished Service Award at the Atlantic City meeting—Dr. Michael E. DeBakey—will participate in a symposium on the surgical considerations of cerebrovascular insufficiency Tuesday afternoon, December 1.

The scientific program, including lectures, symposiums, medical motion pictures, color television, and nearly 100 sci-

entific exhibits, will be held in Dallas Memorial Auditorium. Industrial exhibits will number 251.

The auditorium will also house the "world's largest health fair," sponsored by the Dallas County Medical Society in conjunction with the A.M.A. The fair will run from November 27 to December 7 and will be open to the public.

Another special feature of the A.M.A. meeting will be a national conference on the medical aspects of sports, to be held Monday, Nov. 30—the day before the A.M.A. meeting opens.

The conference will cover the general areas of the physiology and pharmacology of exercise, the training and conditioning of the athlete, and the prevention and treatment of injuries.

The A.M.A. House of Delegates will meet throughout the week at the Adolphus Hotel, meeting headquarters. The first act of the House will be to name the General Practitioner of the Year. The first recipient of the award was Dr. Archer Chester Sudan, Kremmling, Colo., who received the award at the first clinical meeting in January, 1948, at Cleveland.

Dazzling downtown Dallas, heart of a metropolitan area with over one million population, presents one of the nation's most dramatic skylines. In the foreground is the new Memorial Auditorium, site of the 13th clinical meeting of the American Medical Association.



Fiber of skeletal muscle in spasm

Fiber of skeletal muscle relaxed (photomicrographs)

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of acute
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Summary of six published clinical studies:

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SKELETAL MUSCLE SPASM CASES**

| | NO. PATIENTS | | RESPONSE | moderate | slight | none |
|-------------------------------------|-----------------|---------------|-----------------------|----------------------|----------|-----------|
| Carpenter ¹ | 33 | "marked" | 26 | 6 | 1 | — |
| | | "pronounced" | 37 | 20 | — | 1 |
| Forsyth ² | 58 | "good" | 25 | 6 | — | 7 |
| Lewis ³ | 38 | "excellent" | 14 | 2 | 1 | 0 |
| O'Doherty & Shields ⁴ | 17 | "significant" | 27 | — | 2 | 1 |
| Park ⁵ | 30 | "gratifying" | 55 | — | — | 5 |
| Plumb ⁶ | 60 | | | | | |
| TOTALS | 236 | | 184 (78.0%) | 34 (14.4%) | 4 | 14 |

• Highly potent—and long acting.^{1,2,3}

• Relatively free of adverse
side effects.^{1,2,3,5,6}

• In ordinary dosage, does not reduce
muscle strength or reflex activity.¹

REFERENCES: 1. Carpenter, E. B.: Southern M. J. 51:627, 1958. 2. Forsyth, H. F.: J.A.M.A. 167:163, 1958. 3. Lewis, W. B.: California Med. 90:26, 1959. 4. O'Doherty, D. S., and Shields, C. D.: J.A.M.A. 167:160, 1958. 5. Park, H. W.: J.A.M.A. 167:168, 1958. 6. Plumb, C. S.: Journal-Lancet 78:531, 1958.

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ROCKY MOUNTAIN MEDICAL CONFERENCE

Doctors from 22 states and two foreign countries attended the Tenth Biennial Rocky Mountain Medical Conference in Denver, September 9-11.

Although representation was broad, over-all attendance at the conference was only fair. A total of 1,185 persons attended the Denver sessions. This included 685 physicians, 134 members of the Woman's Auxiliary, 229 exhibitors and 137 others.

The consensus of those attending the three-day session was that the scientific program was outstanding. Papers and presentations were excellent and group discussions lively.

Closed-circuit color television presented by Smith, Kline and French Laboratories was technically near-perfect. Physicians seated in the Shirley-Savoy's Lincoln Room got a bigger than life view on a 9x12 foot screen of surgical procedures and panel discussions from the operating rooms of St. Joseph's Hospital, many blocks away. Excellent color and the oversize screen brought out details that are normally seen only by the operating surgeon and his first assistant.

Members of the Rocky Mountain Medical Conference owe a vote of thanks to Smith, Kline and French and its excellent crew for its gratuitous participation in the program.

Commenting on the attendance figures, those who have had experience with past conference meetings felt that attendance this year was one-third to one-fourth below what it should have been. Two basic reasons were given for the slump. The dates of the conference were unfavorable due to the Labor Day weekend just preceding the meeting. Schools were also opening during the week, and two State Medical Societies who are members of the conference held their Annual Meetings just one week following the conference. This materially lessened attendance of physicians from these states.

Choice of the September 9-11 conference dates was made because this was the only period during the latter part of this year that Smith, Kline and French could make their closed-circuit color television equipment available. The excellence of SK&F's contribution justified this choice of scheduling.

Another reason given for the slack in attendance was the fact that while the scientific program covered a broad range of material, the subjects covered material of major interest to only three major fields of medical activity and therefore did not have sufficient appeal to a number of specialty groups. This, of course, is a hazard that every program committee must face.

Despite some disappointment caused by attend-

ance, the quality of the conference scientific presentations and its entertainment and social functions cannot be questioned and all those who participated in planning and presenting the Tenth Biennial Conference deserve a vote of thanks from every physician who attended. In addition, although final figures are not available since not all bills have been received, it is known that this year's conference was a financial success and will have added somewhat to the conference's backlog reserve fund.

New medical group organized

A new medical group, tentatively called the Rocky Mountain Academy of Industrial Medicine, was organized in Denver during the recent Rocky Mountain Medical Conference.

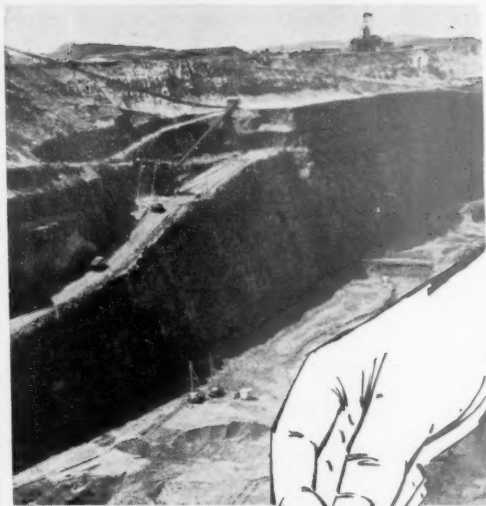
Approximately 30 physicians attended the first organization meeting of the new group which will eventually become a component of the Industrial Medical Association, an international North American organization. It is anticipated that when the Academy is completely organized it will serve an eight-state area: Colorado, Wyoming, Montana, Utah, New Mexico, Arizona, western South Dakota and western Nebraska.

Interim officers elected for a one-year organization period are: Dr. Lewis C. Benesh of Denver, President; Dr. J. Frederic Prinzing of Denver, Vice President; Dr. Irving Ohr of Denver, Secretary; and Dr. James W. Monsour of Denver, Treasurer.

The Academy's Board of Directors includes: Dr. Lewis M. Overton of Albuquerque, N. M.; Dr. Roscoe H. Reeve of Casper, Wyo.; Dr. Russel B. Richardson of Great Falls, Mont.; Dr. Harold C. Jenkins of Bingham Canyon, Utah; Dr. N. Wells Stewart of Lead, S. D.; Dr. William W. Webster of Greeley, Colo.; Dr. William T. Boehm and Dr. James Rae Arneill, both of Denver.

The next regularly scheduled meeting of the Academy will be held in February, 1960, during the Colorado State Medical Society's Midwinter Clinical Session in Denver.

Physicians interested in the Academy should contact Dr. Lewis C. Benesh, United Air Lines, Stapleton Airfield, Denver 5, Colorado.



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| Cobalt Sulfate 2.0 mg. | Riboflavin.....1 mg. |
| Cobalt.....0.4 mg. | Pyridoxine Hydrochloride.....0.25 mg. |
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Translumar cont. from page 73

¹⁰Koszewski, Bohdan J.; Reedy, William J., and Iwerson, Frank: Sudden Death Due to Translumar Aortography. *Ann. Int. Med.*, 48:902, 1958.

¹¹Reedy, William J.; Koszewski, Bohdan, and Murphy, Paul: Evaluation of Aortic Occlusion of Aortography. *Ann. Int. Med.*, February, 1956, pp. 283-290.

¹²Elliott, Robert V., and Peck, Mordant E.: Thrombotic Occlusion of the Aorta as Demonstrated by Translumar Aortograms. *J.A.M.A.*, 148:426-431, 1952.

¹³deWolfe, Victor G.; LeFevre, Fay A.; Humphries, Alfred W.; Shaw, Malin B., and Phalen, George S.: Intermittent Claudication of the Hip and the Syndrome of Chronic Aorto-Iliac Thrombosis. *Circ.*, 9:1, 1954.

¹⁴Lanier, Raymond R.; Elliott, Robert V., and Levine, Morris H.: Aortography in Roentgen Diagnosis. *Rocky Mtn. Med. J.*, 49:427, 1952.

¹⁵Koszewski, B. J., and Reedy, W. J.: Diagnostic Value of Translumar Aortography. *Circulation*, 16:120, 1957.

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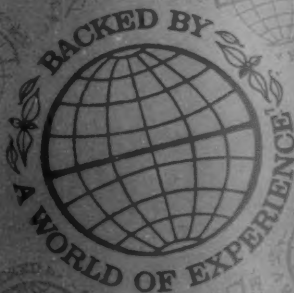
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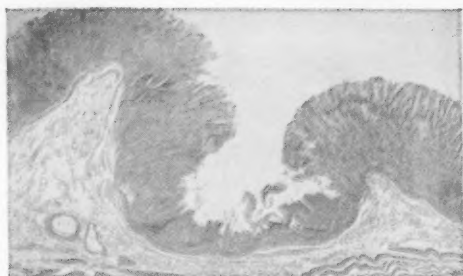
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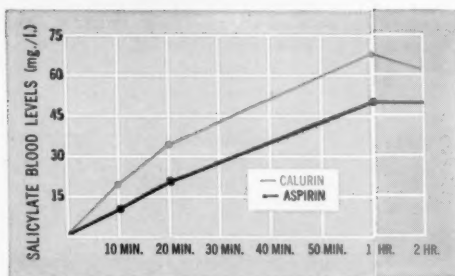


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Particle-induced ulceration—section through lesion found in gastrectomy specimen. An aspirin particle was found firmly imbedded in this undermined erosion. Such lesions may be associated with the relative insolubility of aspirin, which remains in particulate form after dispersion in gastric contents.



Calurin, being freely soluble, is promptly available for absorption into the systemic circulation. Salicylate blood levels in 12 subjects receiving both Calurin and plain aspirin were found to rise more than twice as high within ten minutes following Calurin. Also, these levels persisted higher for at least two hours.¹¹

CALURIN is the aspirin of choice, especially when high-dosage, long-term therapy is indicated:

- 1 High solubility forestalls gastric irritation or damage. This advantage is of special importance in arthritis and other conditions requiring high-dosage, long-term therapy.
- 2 Produces high salicylate blood levels rapidly for prompt analgesic, anti-pyretic, anti-arthritis effect.
- 3 Sodium-free—for safer long-term therapy.
- 4 Flavored: can be chewed or dissolved in the mouth without water if desired—an advantage for patients requiring aspirin administration during the night and for pediatric patients.

Dosage: Each tablet of Calurin is equivalent to 300 mg. (5 gr.) of acetylsalicylic acid. For relief of pain and fever in adult patients, the usual dose of Calurin is 1 to 3 tablets every 4 hours, as needed; in arthritic states, 2 or 3 tablets 3 or 4 times daily; in rheumatic

fever, 3 to 5 tablets 4 or 5 times daily. For children over 6 years, the usual dose is 1 tablet every 4 hours; for children 3 to 6 years, ½ tablet every 4 hours, as required. Not recommended for children under 3.

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^{*}TRADEMARK

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International College of Surgeons

The Second Western Regional Meeting of the International College of Surgeons is to be held in Las Vegas this November. An excellent scientific program is being planned with many outstanding speakers, as well as ample opportunity for social advantages and entertainment which Las Vegas offers.

Registration, Sunday, November 22. Scientific Meeting, Monday and Tuesday, November 23 and 24, Stardust Hotel. Registration \$35.00, including banquet and cocktails. (There is no registration fee for interns and residents.)

Hotel reservations are to be made directly to the hotel. For further information concerning this meeting, contact F. M. Turnbull, Jr., M.D., 1930 Wilshire Blvd., Los Angeles 57, California.

Omaha Mid-West Clinical Society

The Twenty-Seventh Annual Assembly of the Omaha Mid-West Clinical Society will be held November 2, 3, 4, 5, 1959, at Civic Auditorium, Omaha, Nebraska.

The Assembly consists of four full days of postgraduate study presented under sponsorship of Creighton University School of Medicine, University of Nebraska College of Medicine, and Nebraska Chapter of the American Academy of General Practice . . . approved for Category I

credit. It includes 32 lectures by faculty members of Creighton and Nebraska Colleges of Medicine and features 11 guest speakers of national repute.

Panel discussions will cover: Antibiotics—complications of indiscriminate use; shock—resuscitation and first aid survival management; common fractures; and a symposium, "This Is What's New!"



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International College of Surgeons

The Mid-Atlantic Meeting of the International College of Surgeons will be held at the Homestead Hotel, Hot Springs, Virginia, on November 16, 17 and 18. The profession is cordially invited to attend.



Ophthalmology courses offered

The New York University Postgraduate Medical School offers the following courses in ophthalmology starting in November.

Ophthalmic Plastic Surgery for Specialists will be a part-time course of five days' duration, 2 to 5 p.m., November 16 through 20, 1959. It covers the essentials of ophthalmic plastic surgery for the practicing ophthalmologist. Special emphasis is laid on the more common fundamental procedures peculiar to lid surgery. Given under the direction of Dr. Sidney A. Fox.

Surgery of the Cornea will be a full-time course of five days' duration, November 30 through December 4, 1959. Designed to offer thorough

coverage of current concepts and practices in the field of corneal surgery. Opportunity is provided to perform surgical procedures on animal eyes. Given under the direction of Dr. Ramon Castroviejo.

Ocular manifestations of the chronic renal tubular insufficiency syndromes

It is now possible to explain the association of certain conspicuous types of ocular disorder with insufficient renal tubular reabsorption. Three such disorders are Lowe's cerebro-ocular syndrome (congenital or early infantile cataract with hydrophthalmos), pseudohypoparathyroidism, and Fanconi's syndrome (vitamin D-refractory rickets with other extensive metabolic disturbances). A case of Lowe's syndrome in a boy-baby 3 months old is described with emphasis on the ocular and urinary findings. Pseudohypoparathyroidism was observed in a man aged 39 who had always been confined either to his home or to an institution because of profound mental and physical deficiencies including progressive impairment of vision. In Fanconi's syndrome (not illustrated) cysteine crystals appear in the conjunctiva and cornea. These disorders are readily understood when it is considered that renal tubular reabsorption concerns the phosphates, amino acids, and basic elements. They are important to the oph-

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| Ca Pantothenate | 5 mg. |
| Choline Bitartrate | 50 mg. |
| Inositol | 50 mg. |
| Ascorbic Acid (C) | 50 mg. |
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| L-Lysine Monohydrochloride | 25 mg. |
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| Iron (as Fumarate) | 10 mg. |
| Iodine (as KI) | 0.1 mg. |
| Calcium (as CaHPO ₄) | 157 mg. |
| Phosphorus (as CaHPO ₄) | 122 mg. |
| Boron (as Na ₂ B ₄ O ₇ · 10H ₂ O) | 0.1 mg. |
| Copper (as CuO) | 1 mg. |
| Fluorine (as CaF ₂) | 0.1 mg. |
| Manganese (as MnO ₂) | 1 mg. |
| Magnesium (as MgO) | 1 mg. |
| Potassium (as K ₂ SO ₄) | 5 mg. |
| Zinc (as ZnO) | 0.5 mg. |

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thalmologist because the characteristic findings enable him to contribute valuable diagnostic information to the internist and others concerned in the treatment of these severe derangements of metabolism. Exact diagnosis is essential not only for effective treatment but also for counselling families in which these derangements occur.

—Harold F. Falls: A.M.A. Arch. Ophth. 62:188-195 (Aug.) 1959.

Practice of surgery in a neuropsychiatric hospital

Psychotic patients present special difficulties in both diagnosis and treatment, yet 13 years of experience in a neuropsychiatric veterans hospital have shown that the presence of a psychosis does not alter the physical signs of disease and does not preclude the obtaining of a medical history or the administration of modern therapy. In surgical cases, preoperative management includes due preparation for all the experiences in the operating room; consent to operation has been refused only in extremely rare instances, and it is no longer necessary to struggle with patients to get them anesthetized. When the cooperation of a patient is needed for operations under local anesthesia, preoperative medication generally should be minimal. The postoperative course is usually uneventful, but it is necessary to remember that the psychotic patient seldom complains of pain, is not likely to be careful with tubes and catheters, cannot be counted upon to cough up secretions, and may attempt ambulation too soon. The psychiatric behavior of the patient is especially important in orthopedic surgery because splints, casts, and traction apparatus may be tampered with or misused as lethal weapons by assaultive or suicidal patients. Trusses, braces, colostomy bags, and ambulatory urinals are unsuitable for most psychotic patients, and with patients potentially suicidal the triangular bandage, the elastic bandage, lengths of roller bandage or adhesive tape, as well as clips or safety pins, must be avoided. Difficulties with urination and defecation have frequently been found to be an expression

of the psychosis itself, but the two functions interfere with each other in the sense that a greatly distended bladder has at times been found to prevent evacuation while in other cases fecal masses in patients with megacolon have caused urinary retention. Cataract extractions have been successful in 19 psychotic patients, with definite changes for the better in 10 patients whose improved vision greatly increased their capacity for self-care. The presence of a full-time surgeon in a neuropsychiatric hospital has been shown to result in a low surgical mortality rate; it also is reassuring to the patients and their families.

—Walter E. Marchand: A.M.A. Arch. Gen. Psychiat. 1:123-131 (Aug.) 1959.

Acute dissecting aneurysm of the aorta

Surgical correction of dissecting aneurysm of the aorta is now possible. The exact diagnosis of this condition is therefore more important than ever. The histories of 11 patients who underwent surgery have been analyzed in order to identify retrospectively the symptoms and findings most valuable in establishing the diagnosis. The most important was a history of very severe pain which usually radiated to the back and frequently moved from its original location to another area; it was more severe than the pain of myocardial infarction and particularly significant in the absence of electrocardiographic abnormalities. Roentgenograms were of critical importance in nine of the 11 cases, especially in one instance when the aortogram showed a double-barreled lumen. A difference in the peripheral pulses was present in six cases. Systolic murmur, abdominal bruit, and an abdominal mass occurred in less than half of the cases, but were helpful diagnostic points when they did occur. Four of the 11 patients survived surgery and did well after operation. Although the mortality in this series was high, the risks of allowing acute dissecting aneurysm to go untreated are so great that the authors advise prompt operation as soon as diagnosis is established.

—Julian R. Beckwith, William H. Muller, W.



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Dean Warren, and J. Edwin Wood, Jr.: A.M.A.
Arch. Int. Med. 104:217-225 (Aug.) 1959.



Clinical significance of a lump in the throat

The sensation of a lump in the throat is a common complaint and is generally treated lightly, but to assume that it is purely functional without due examination in a given case is dangerous. The emotional lump in the throat is probably a spasm of the cricopharyngeus muscle, which is the lowermost portion of the m. constrictor pharyngis inferior and serves normally as the sphincter of the esophagus. The lump which moves up and down commonly represents the results of inflammation of the nasopharyngeal mucosa after influenza. The lump with aching is most often found in women and is associated with hypothyroidism. In the case presented, however, a lump that had been assumed at first to be functional in origin and later ascribed to chronic lingual tonsillitis, was ultimately found to be a squamous-cell carcinoma on the tongue at the level of the tip of the epiglottis. The discomfort connected with pharyngitis is not necessarily proportional to the extent of the pathological changes found on examination. The temptation to explain a lump in the throat as a form of neurosis should be resisted, and the physician should use all the means at his disposal to make a diagnosis and give appropriate treatment.

—G. Edward Tremble: A.M.A. Arch. Otolaryng.
70:157-165 (Aug.) 1959.

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THE BOOK CORNER

New books received

New books received are acknowledged in this section. From these, selections will be made for reviews in the interests of the readers. Books here listed will be available for lending from the Denver Medical Library soon after publication.

The Mouth: Its Clinical Appraisal: By A. B. Riffle, D.D.S. Philadelphia, J. B. Lippincott Co., 1959. 118 p. Price: \$3.50.

Ciba Foundation Symposium: Carcinogenesis: Mechanisms of Action. Boston, Little, Brown & Co., 1959. 336 p. Price: \$9.50.

Ciba Foundation Symposium: Regulation of Cell Metabolism. Boston, Little, Brown & Co., 1959. 337 p. Price: \$9.50.

The Surgeon and the Child: By Willis J. Potts, M.D. Phila., W. B. Saunders Co., 1959. 255 p. Price: \$7.50.

Anesthesia for Infants and Children: By Robert M. Smith, M.D. St. Louis, C. V. Mosby Co., 1959. 418 p. Price: \$12.00.

The Care of Minor Hand Injuries: By Adrian E. Flatt, M.A., M.D. St. Louis, C. V. Mosby Co., 1959. 266 p. Price: \$9.50.

Molecules and Mental Health: Edited by F. A. Gibbs, M.D. Phila., J. B. Lippincott Co., 1959. 189 p. Price: \$4.75.

Principles of Disability Evaluation: By Wilmer Cauthorn Smith, M.D. Phila., J. B. Lippincott Co., 1959. 210 p. Price: \$7.00.

Synopsis of Ear, Nose and Throat Diseases: By R. E. Ryan, W. C. Thornell, and Hans von Leden. St. Louis, C. V. Mosby Co., 1959. 383 p. Price: \$6.75.

Synopsis of Ophthalmology: By William H. Havener, M.D. St. Louis, C. V. Mosby Co., 1959. 288 p. Price: \$6.75.

When a Family Faces Cancer: By Elizabeth Ogg. Public Affairs Pamphlet No. 286. 1959. 28 p. Price: 25 cents.

Book reviews

The Plasma Proteins: Clinical Significance: By Paul G. Weil, M.D. Phila., J. B. Lippincott Co., 1959. 133 p. Price: \$3.50.

This monograph on the plasma proteins and their clinical significance is a very condensed review of a very broad subject, and places at the disposal of the practitioner and the student a very digested but easily read summary. In addition to reviewing the origin, properties and function of the plasma proteins, the author very rapidly but

concisely discusses the plasma proteins of more recent discovery and interest, with their promise of aid and enlightenment in diagnosis and treatment of presently poorly understood clinical entities. The author is to be commended for presenting to the busy practitioner a remarkably complete review of the present knowledge of the plasma proteins.

N. S. Saliba, M.D.

Gynecologic Radiography: By Jean Dalsace, M.D., and J. Garcia-Calderon, M.D., with foreword by I. C. Rubin, M.D. Switzerland, Hoeber-Harper, 1959. Price: \$8.00.

This book is a comprehensive treatise on the technic and application of hysterosalpingography and includes chapters on uterine development, normal radiographic uterine anatomy and its variations as well as congenital malformations.

The more important chapters include the use of hysterosalpingography in diagnosis of obstruction and stenosis of the fallopian tubes, diagnosis of intrauterine synechiae (Asherman's syndrome) and fistulas.

The authors' experience also includes the use of the technic in diagnosis of fibroids and polyps, hyperplasia of the endometrium, cervical and endometrial carcinoma and uterotubal tuberculosis. Some of their films showing retrograde injection of the contrast material into the uterine veins and pelvic lymphatics would raise question to the use of hysterosalpingography in the diagnosis of malignant disease where dissemination may be provoked.

The book also includes a chapter on radiography of the breast.

Although this book will have a very limited audience, it should be on the shelf of every radiologist and gynecologist doing hysterosalpingography.

B. L. P.

Long-Term Illness: Management of the Chronically Ill Patient: Edited by Michael G. Wohl, M.D., F.A.C.P., with the collaboration of 79 contributing authorities. Phila., W. B. Saunders Co., 1959. 748 p. Price: \$17.00.

Nearly all doctors are faced with the difficult problem of treating the chronically ill patient. This excellent book has collected the expert knowledge of many well known physicians, and some very qualified persons in related fields of medicine, in an attempt to improve our approach to the treatment of chronic diseases. This book is of value to all types of practicing physicians, and would also be excellent for medical students.

The book is divided into two parts, the first dealing with general principles of hospital and home care, rehabilitation, psychologic problems, and nursing procedures in the chronically ill. The second part deals with treatment of specific diseases, with emphasis on the psychologic approach to the illness, and drug values and dosages in the various diseases.

This book is an excellent addition to the field of chronic diseases, and would be of value to anybody involved in the treatment of these diseases.

R. L. Harvey, M.D.

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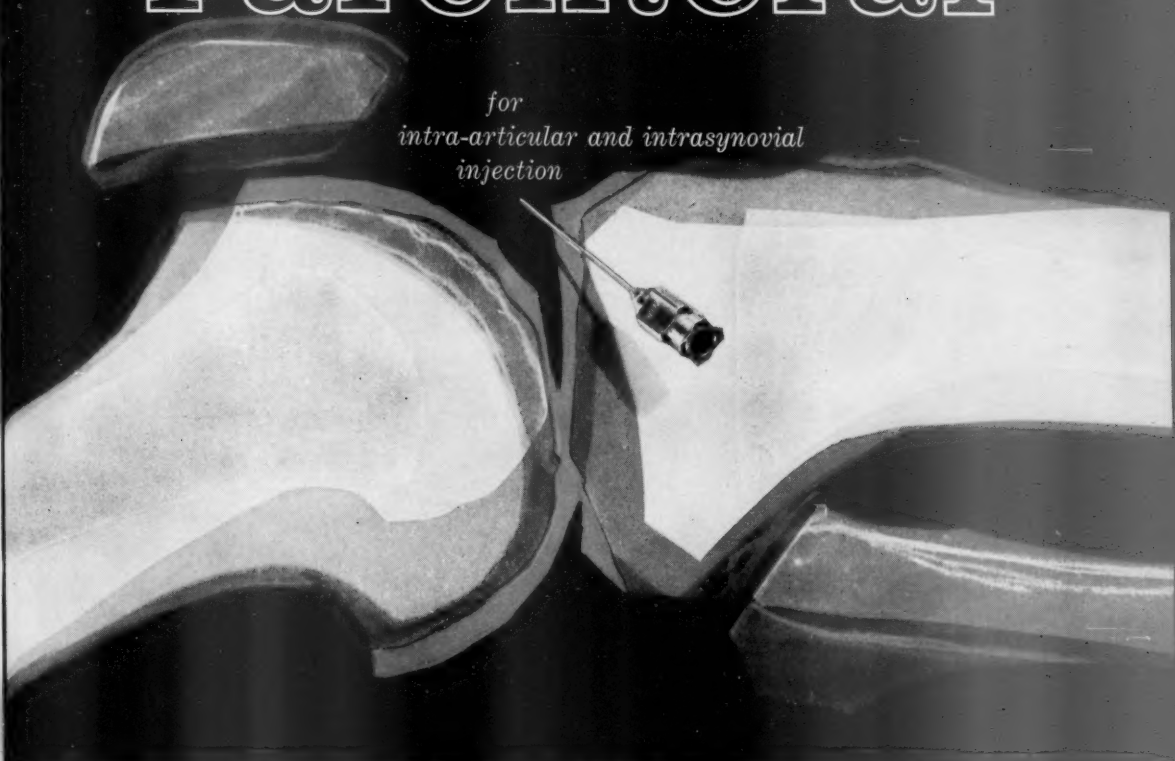
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The Colorado State Medical Society

*Midwinter Clinical Session, February 16-19, 1960
Denver*

President: John L. McDonald (Chairman of the Board), Colorado Springs.

President-elect: Cyrus W. Anderson, Denver.

Vice President: J. Alan Shand (Vice Chairman of the Board), La Junta.

Treasurer: William C. Service, Colorado Springs, 1962.

Additional Trustees: Carl W. Swartz, Pueblo, 1960; Fred R. Harper, Denver, 1961; Walter M. Boyd, Greeley, 1961; Carl H. McLauthlin, Denver, 1962.

Delegates to A.M.A.: Kenneth C. Sawyer, Denver, 1960; (Alternate, Gatewood C. Milligan, 1960); E. H. Munro, Grand Junction, 1961; (Alternate, Harlan E. McClure, 1961); I. E. Hendryson, Denver, 1961; (Alternate, C. C. Wiley, Longmont, 1961).

Executive Secretary: Mr. Harvey T. Sethman, 835 Republic Building, Denver 2, Colorado; telephone AComa 2-0547.

Montana Medical Association

*Annual Meeting, September 15-17, 1960
Bozeman*

President: Leonard W. Brewer, Missoula.

President-elect: Raymond F. Peterson, Butte.

Vice President: Everett H. Lindstrom, Helena.

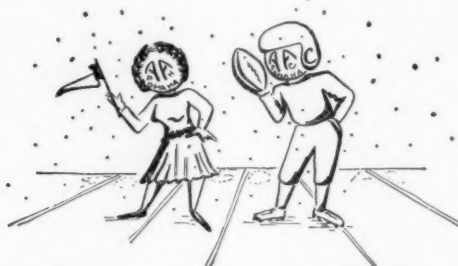
Secretary-Treasurer: W. E. Harris, Livingston.

Assistant Secretary-Treasurer: Jess T. Schwidde, Billings.

Executive Committee: Leonard W. Brewer, Missoula; Raymond F. Peterson, Butte; Everett H. Lindstrom, Helena; W. E. Harris, Livingston; Jess T. Schwidde, Billings; John A. Layne, Great Falls; Herbert T. Caraway, Billings.

Delegate to American Medical Association: Paul J. Gans, Lewiston; alternate, S. C. Pratt, Miles City.

Executive Secretary: Mr. L. R. Hegland, P.O. Box 1692, Billings; telephone 9-2585.



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Nevada State Medical Association

*Annual Meeting, 1960, Las Vegas
(Dates to be announced)*

President: Ernest W. Mack, Reno.

President-elect: Wesley W. Hall, Reno.

Secretary-Treasurer: William A. O'Brien, III, Reno.

Delegate to American Medical Association: Wesley W. Hall, Reno; alternate: Earl N. Hillstrom, Reno.

Executive Committee: Roland Stahr, Reno; Ernest W. Mack, Reno; William A. O'Brien, III, Reno; Wesley W. Hall, Reno; Earl N. Hillstrom, Reno; Stanley L. Hardy, Las Vegas; Thomas S. White, Boulder City; John M. Read, Elko; John M. Moore, East Ely; William M. Tappan, Reno.

Executive Secretary: Mr. Nelson B. Neff, P. O. Box 188, Reno; telephone FA. 3-6788.

New Mexico Medical Society

President: Lewis M. Overton, Albuquerque.

President-elect: Allan L. Haynes, Clovis.

Vice President: William E. Badger, Hobbs.

Secretary-Treasurer: Thomas L. Carr, Albuquerque.

Councillors: Wendell H. Peacock, Farmington, 1960; George W. Prothro, Clovis, 1960; Gerald A. Slusser, Artesia, 1960; W. J. Hossley, Deming, 1961; Guy E. Rader, Albuquerque, 1961; Robert P. Beaudette, Raton, 1962; William R. Oakes, Los Alamos, 1962.

Delegate to American Medical Association: Earl L. Malone, Roswell, 1960; Alternate: Samuel R. Ziegler, Espanola, 1960.

Executive Secretary: Mr. Ralph R. Marshall, 220 First National Bank Building, Albuquerque; telephone CH. 2-2102.

The Utah State Medical Association

*Annual Session, September 14-16, 1960
Salt Lake City*

President: I. Bruce McQuarrie, Ogden.

President-elect: Wallace S. Brooke, Salt Lake City.

Secretary: J. Poulson Hunter, Salt Lake City.

Treasurer: Robert M. Dalrymple, Salt Lake City.

Councillors: Box Elder, 1960, D. L. Bunderson, Brigham City; Cache Valley, 1960, C. J. Daines, Logan; Carbon County, 1960, A. R. Demman, Helper; Central Utah, 1959, Stanford Rees, Gunnison; Salt Lake, 1960, Richard W. Sonntag, Salt Lake City; Southern Utah, 1960, James S. Prestwich, Cedar City; Uintah Basin, 1960, R. Bruce Christian, Vernal; Weber County, 1961, Wendell J. Thompson, Ogden; Utah, 1959, R. E. Jorgenson, Provo.

Executive Committee: I. Bruce McQuarrie, Ogden; U. R. Bryner, Salt Lake City; Wallace S. Brooke, Salt Lake City; J. Poulson Hunter, Salt Lake City; Robert M. Dalrymple, Salt Lake City.

Delegate to American Medical Association: Kenneth B. Castleton, Salt Lake City; Alternate, Drew Petersen, Ogden.

Executive Secretary: Mr. Harold Bowman, 42 South Fifth East Street, Salt Lake City 2; telephone EL. 5-7477.

The Wyoming State Medical Society

*Annual Session, September 7-10, 1960
Jackson Lake Lodge*

President: Benjamin Gittlitz, Thermopilis.

President-elect: Francis A. Barrett, Cheyenne.

Vice President: S. J. Glovale, Cheyenne.

Secretary: Frederick H. Haigler, Casper.

Treasurer: C. D. Anton, Cheyenne.

Councillors: Albany County, B. J. Sullivan, Laramie; Carbon County, Guy M. Halsey, Rawlins; Converse County, Roman J. Zwalsh, Glenrock; Fremont County, Bernard D. Stack, Riverton; Goshen County, O. C. Reed, Torrington; Laramie County, S. J. Glovale, Cheyenne; Natrona County, Frederick H. Haigler, Casper; Sheridan County, Ralph Arnold, Sheridan; Sweetwater County, R. C. Stratton, Green River; Teton County, Vacancy; Uinta County, J. S. Hellewell, Evanston; Northeastern Wyoming, Virgil Thorpe, Newcastle; Northwest Wyoming, John H. Froyd, Worland.

Delegate to A.M.A.: A. T. Sudman, Green River, 1960; Alternate, B. J. Sullivan, Laramie, 1960.

Executive Secretary: Mr. Arthur R. Abbey, Box 2036, Cheyenne; telephone 2-5525.

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